

Normal Teacher Publications.

*The
Normal Question
Book.*

First Edition.

THE
Normal Question Book ;

CONTAINING THREE THOUSAND QUESTIONS AND ANSWERS
TAKEN FROM THE BEST AUTHORITIES ON THE COMMON SCHOOL
BRANCHES, ARRANGED IN A SYSTEMATICAL AND PHILOSOPHICAL
ORDER ; WITH AN APPENDIX OF OUTLINES ON MAP DRAWING,
ON INFINITIVES AND PARTICIPLES AND ANALYSIS IN GRAMMAR,
ON PERCENTAGE IN ARITHMETIC, ON THEORY AND PRACTICE OF
TEACHING, A SCALE OF CRITICISM, HINTS AND SUGGESTIONS ON
THE PREPARATION OF MSS., RULES AND REGULATIONS TO BE
OBSERVED DURING EXAMINATIONS, &C.

**Prepared Expressly for the Use of Teachers in Reviewing
for Examinations ;**

Also

ADAPTED TO THE USE OF COMMON SCHOOLS, HIGH SCHOOLS,
AND INSTITUTES, FOR DAILY, WEEKLY AND
MONTHLY REVIEWS.

By

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EDITOR AND PUBLISHER OF THE "NORMAL TEACHER."

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PREFACE.

A number of question books have been prepared on the common school branches, but as a learned educator expresses it, "none of them seem to be quite the thing," or in other words there is in them a want of adaptation of means to end. The chief purpose of The Normal Question Book is that of preparing teachers for examination, by affording them a hand-book, in the use of which they will be directed in the review of the branches in a natural and normal manner. The questions are so arranged as to bring out the vital and difficult points of each subject, and the answers are selected from various excellent and late authorities, with the name, page and paragraph of the book from which the answer is taken, given in connection with it. Thus, by the use of this book in a review, the student is introduced to the latest and best authorities on the several branches, and in tracing out the answers, is led to an investigation and comparison of their merits. In this way he forms an acquaintance with a range of reference books such as will be necessary to make him well informed, and "up to the times" educationally. This independent comparison of authors is a great point in our normal method of study, and it is this which makes our pupils independent of *any* books, having an opinion of their own, or able to cite their authority if their opinion be called in question. The questions and answers are by no means the *all* important feature of the book. The Appendix of Outlines on Map Drawing, Percentage, Infinitives and Participles, Analysis in Grammar, Theory and Practice of Teaching, Topic Lists, and Hints and Suggestions on various other subjects, such as the preparation of manuscripts, and rules and regulations to be observed during examinations, must prove a mine of treasure to the teacher. If the Normal Question Book does *not* prove to be "quite the thing," we hope it will at least be a suggestive step in the line of improvement. But trusting that it *may* be valuable—that it may be a helpful guide to many who will faithfully follow its leadings, it is respectfully submitted to the Teaching Public.

Danville, Indiana, June 1, 1879.

PUBLISHER'S NOTICE.

For the purpose of making due acknowledgement to the authors and publishers of the several works consulted in the preparation of this book, and for the benefit of those who may desire to purchase and consult any of these several works, we give below a complete list of them, together with the names and addresses of the publishers.

ORTHOGRAPHY: Harvey's English Grammar ; published by Van Antwerp, Bragg & Co., Cincinnati, Ohio. Greene's English Grammar ; published by Cowperthwait & Co., Philadelphia. Clark's Normal Grammar ; published by A. S. Barnes & Co., 34 and 36 Madison street, Chicago, and 11 Williams street, New York. Hamill's Science of Elocution ; published by Nelson & Phillips, New York, and Hitchcock & Walden, Cincinnati. Quackenbos' English Grammar ; published by D. Appleton & Co., 549 and 551 Broadway, New York. Wolfard's Practical Speller ; published by Geo. E. Stevens & Co., Cincinnati, Ohio. Holbrook's Complete English Grammar ; published by Van Antwerp, Bragg & Co., Cincinnati and New York. Fewsmith's English Grammar ; published by Sower, Potts & Co., Philadelphia. Butler's Practical and Critical Grammar ; published by John P. Morton & Co., Louisville, Ky.

READING: Fertich's Instructive Elocution ; published by the Author, W. H. Fertich, Muncie, Ind. Hamill's Science of Elocution ; published by Nelson & Phillips, New York, and Hitchcock & Walden, Cincinnati. Sander's Rhetorical Reader ; published by Ivison, Phinney, Blakeman & Co., Nos. 47 and 49 Greene street, New York, and by J. B. Lippincott & Co., Philadelphia, and S. C. Griggs & Co., Chicago. Holbrook's Normal Methods ; A. S. Barnes & Co., New York and Chicago. Harvey's Graded School Fifth Reader ; published by Van Antwerp, Bragg & Co., Cincinnati and New York. McGuffie's Eclectic Fifth Reader ; published by Van Antwerp, Bragg & Co., Cincinnati and New York. Cole's Institute Reader ; published by Van Antwerp, Bragg & Co., Cincinnati and New York. Holbrook's Complete English Grammar ;

published by Van Antwerp, Bragg & Co., Cincinnati and New York. Harper's United States Sixth Reader; Harper Brothers, publishers, New York. Northend's Teacher and Parent; published by Jenks, Hickling & Swan, 131 Washington street, Boston.

ARITHMETIC : Philosophy of Arithmetic, Written Arithmetic, Normal Union Arithmetic, by Edward Brooks, A. M., Ph. D.; published by Sower, Potts & Co., Philadelphia. White's Complete, and Ray's Third and Higher Arithmetics; published by Van Antwerp, Bragg & Co., Cincinnati, Ohio. Quackenbos' Practical and Higher Arithmetics; published by D. Appleton & Co., New York. The New American Practical Arithmetic; published by J. H. Butler & Co., Philadelphia. Milne's Practical Arithmetic; published by Jones, Brother & Co., Cincinnati, Philadelphia, Chicago and Memphis. French's Common School Arithmetic; published by Harper & Brothers, New York. Thompson's Practical Arithmetic; published by William H. Moore & Co., Cincinnati. Robinson's Progressive Practical Arithmetic; published by Ivison, Blakeman, Taylor & Co., New York and Chicago. Hagar's Common School Arithmetic; published by Cowperthwait & Co., Philadelphia. Raub's Complete and Elementary Arithmetics; published by Porter & Coates, Philadelphia.

GRAMMARS : Boltwood's English Grammar, and How to teach It; published by Geo. Sherwood & Co., Chicago. Holbrook's Complete English Grammar; published by Van Antwerp, Bragg & Co., 137 Walnut street, Cincinnati, and 28 Bond street, New York. Smith's English Grammar; published by J. H. Butler & Co., Philadelphia. Swinton's Progressive English Grammar; Harper & Brothers, Publishers, New York. Lynd's First Book of Etymology; published by E. C. & J. Biddle, 6 South Fifth street, Philadelphia. Quackenbos' English Grammar; published by D. Appleton & Co., 549 and 551 Broadway, New York. Bingham's Grammar of the English Language; published by J. H. Butler & Co., Philadelphia. Kerl's Common School Grammar; published by Ivison, Blakeman, Taylor & Co., 138 and 140 Grand street, New York, and 133 and 135 State Street, Chicago. Pinneo's Analytical Grammar; published by Van Antwerp, Bragg & Co., Cincinnati. Harvey's English Grammar; published by Van Antwerp, Bragg & Co., 137 Walnut street, Cincinnati, and 28 Bond street, New York. Clark's Normal Grammar; published by A. S. Barnes & Co., New York, Chicago and New Orleans. Fewsmith's Elementary Grammar;

published by Sower, Potts & Co., 530 Market street and 523 Minor street, Philadelphia. Goold Brown's First Lines of English Grammar, and Grammar of Grammars ; published by William Wood & Co., 27 Great Jones street, New York. English Grammar, Lee & Hadley ; published by Hadley Brothers, Chicago. Hart's English Grammar and Analysis ; published by Eldredge & Bro., 17 North Seventh street, Philadelphia. English Grammar and Composition, Reed and Kellogg ; published by Clark & Maynard, 5 Barclay street, New York. Butler's Practical and Critical Grammar ; John P. Morton & Co., Louisville, Ky.

HISTORY: Taylor's Brief History of the American People ; published by George Sherwood & Co., Chicago. Parley's Common School History of the World, by Samuel G. Goodrich ; published by J. H. Butler & Co., Philadelphia. Campbell's Concise School History of the United States ; published by Brewer & Tileston, Boston ; J. W. Schermerhorn & Co., New York ; Eldredge and Bro., Philadelphia. Venable's United States History ; Van Antwerp, Bragg & Co., Cincinnati and New York. Berard's United States History ; published by Cowperthwait & Co., Philadelphia. Henry's School History of the United States ; published by Martin & Co., Paducah, Ky. Swinton's Condensed U. S. History ; published by Ivison, Blakeman, Taylor & Co., 138 and 140 Grand street, New York, 133 and 135 State street, Chicago. Barnes' Brief History of the United States ; published by A. S. Barnes & Co., New York and Chicago. Willard's School History of the United States ; published by A. S. Barnes & Co., New York and Chicago. Ridpath's Popular History ; published by Nelson & Phillips, New York. Wilson's Outlines of History, University Edition ; published by Ivison, Blakeman & Co., New York and Chicago. Harper's Smaller School History, by David B. Scott ; published by Harper & Brothers, Franklin Square, New York. Gilman's General History ; published by Hurd & Houghton, New York, and The Riverside Press, Cambridge. Anderson's Grammar School History ; published by Clark, & Maynard, New York, and Jansen, McClure & Co., Chicago. Quackenbos' History ; published by D. Appleton & Co., 443 and 445 Broadway, New York. Kerney's Catechism of The History of the United States ; published by Kelly & Piet, Baltimore, Md.

GEOGRAPHY: Swinton's Complete Course in Geography ; published by Ivison, Blakeman, Taylor & Co., New York and Chicago.

Eclectic School Geography, by A. Von Steinwehr; published by Van Antwerp, Bragg & Co., New York and Cincinnati. Harper's School Geography; published by Harper and Brothers, New York. Mitchell's New School Geography; published by J. H. Butler & Co., Philadelphia. Houston's Physical Geography; published by Eldredge and Brother, No. 17 North Seventh St., Philadelphia. Guyot's Physical Geography; published by Chas. Scribner's Sons, 743 and 745 Broadway, New York. Our World in a Nutshell; published by the World Publishing House, 139 Eighth Street, New York. Monteith's Comprehensive Geography; published by A. S. Barnes & Co., Chicago. Swinton's Complete Course in Geography; published by Ivison, Blakeman, Taylor & Co., New York and Chicago. Warren's Physical Geography; published by Cowperthwait & Co., Philadelphia. Loomis's Treatise on Astronomy; Harper Brothers, New York.

PHYSIOLOGY: Brown's Physiology and Hygiene; published by Van Antwerp, Bragg & Co., Cincinnati and New York. Hand Book of Health, by J. N. Loughborough; published by Seventh Day Adventist Publishing Association, Battle Creek, Michigan. Hitchcock's Anatomy and Physiology; published by Ivison, Blakeman, Taylor and Co., New York and Chicago. Comings Class Book of Physiology; published by D. Appleton & Co., 549 and 551 Broadway, New York. Kirk's Hand Book of Physiology; published by Henry C. Lea, Philadelphia. Cutter's Anatomy, Physiology and Hygiene, by J. B. Lippincott & Co., Philadelphia. Dalton's Physiology and Hygiene and Draper's Physiology; published by Harper and Brothers, New York. Steele's Fourteen Weeks in Physiology; published by A. S. Barnes & Co., New York, Chicago and New Orleans. Huxley and Youman's Physiology and Hygiene; published by D. Appleton & Co., New York. First Lessons in Physiology; published by The Central Publishing Company, St. Louis.

THEORY AND PRACTICE: Page's Theory and Practice of Teaching, Phelps's Teacher's Hand Book, Holbrook's Normal Methods, Holbrook's School Management, Hecker's Scientific Basis of Education, Chadbourne's Lectures, History and Progress of Education, Jewell's School Government; published by A. S. Barnes & Co., New York and Chicago. Wickersham's Methods of Instruction, Wickersham's School Economy; published by J. B. Lippincott & Co., Philadelphia. Sizer's How to Teach According to Temperament and Mental Development; published by S. R. Wells & Co., 737 Broadway, New York. DeGraff's School Room Guide; published by Davis,

Bardeen & Co., Syracuse, New York. Royce's *Deterioration and Race Education*; published by Lee & Shepard, Boston, Mass. *Johonnot's Principles and Practice of Teaching*; published by D. Appleton & Co., New York. *Essays on Educational Reformers*, by R. H. Quick; published by Robert Clarke & Co., Cincinnati, O. *Northend's Teacher and Parent*; published by Jenks, Hickling & Swan, 131 Washington Street, Boston. *Our National System of Education*, by John C. Henderson, Jr.; published by Dodd, Mead & Co., 751 Broadway, New York. *Combe on the Constitution of Man*; published by S. R. Wells & Co., 737 Broadway, N. Y. *Education*, by Herbert Spencer; published by D. Appleton & Company, Broadway, New York. *Pedagogics as a System*, by Dr. Karl Rosenkranz; published by the R. P. Stuckley Company, Printers, corner Main and Olive Streets, St. Louis, Mo. *Emerson's Watts on the Improvement of the Mind*; published by Hickling, Swan & Brewer, Boston, Ingham & Bragg, Cleveland. *Powell on Man*; published by Robert Clark & Co., Cincinnati. *Sypher's Art of Teaching School*; published by J. M. Stoddart & Co., J. A. Bancroft & Co., Chicago and, Indianapolis, A. H. Andrew's & Co., a Western Publishing and School Furnishing Co., St. Louis. *The School and the School Master*, by Alonzo Potter; published by Harper & Brothers, Franklin Square, New York. *Rauch's Psychology*; published by M. W. Dodel, New York, Crocker & Brewster, Boston; Thomas Cowperthwait & Co., Philadelphia.

CIVIL GOVERNMENT: *Wayland's Elements of Political Economy*; published by Sheldon & Company, 8 Murray Street, New York. *Truman Hastings' Law for the Masses*; published by W. F. Schneider, 214-220 Woodland Avenue, Cleveland, Ohio. *Champlin's Political Economy*; published by A. S. Barnes & Co., 111 and 113 William St., cor. John, New York. *James N. McElligott's American Debater*; published by Ivison, Blakeman, Taylor & Co., 133 and 140 Grand Street, New York, 133 and 135 State Street, Chicago. *The Voter's Text Book*, by James M. Hiatt; published by Asher, Adams & Higgins, Indianapolis, Ind. *John S. Hart's Brief Exposition of the Constitution of the United States*; published by J. H. Butler & Co., Philadelphia. *Politics for Young Americans*, by Charles Nordhoff; published by Harper & Brothers, Franklin Square, New York.

More extensive works than the above might have been profitably used in connection with the preparation of this book, but we preferred to limit our references to works in immediate use in common schools.

QUESTIONS ON ORTHOGRAPHY.

1. Define Orthography.
2. What is an elementary sound?
3. How many elementary sounds in the English language, and how are they represented?
4. Give their classification.
5. Define vocals, sub-vocals and aspirates, and explain the terms correlatives, liquids, coalescents, explosives and continuents.
6. What is a letter?
7. How are letters divided?
8. What further division can be made?
9. Name and define the vowels and consonants.
10. When are *w* and *y* vowels?
11. How are consonants distinguished?
12. Name and define the Semi-vowels and Mutes.
13. What do you understand by the Liquids?
14. How do letters differ in the variety of their representation?
15. Of what uses are silent letters?
16. When are letters said to be *long* and when *short*?
17. How do letters combine to form sounds?
18. What is the *name* of a letter?
19. What is the *power* of a letter?
20. When two or more letters unite what do they form?
21. What is a *final letter*?
22. How are vowels united?

23. Name and define the classes of *diphthongs* and *triphthongs*?
24. How are consonants united?
25. Do vowel and consonant sounds unite?
26. Define *Digraph* and *Trigraph*.
27. What is a syllable?
28. What is the essential part of a syllable?
29. Of what may a syllable consist?
30. Give a model for analyzing syllables.
31. What is a word?
32. How are words classified?
33. What is accent?
34. What is an accented syllable?
35. How is accent denoted?
36. What does a difference of accent sometimes serve to do?
37. What difference is found in the accentuation of compound words?
38. When is the hyphen generally used between the parts of a compound word, and when is it commonly omitted?
39. What words have an accent?
40. Which may the accented syllable be?
41. How many and what kinds of accent are there?
42. Mention the significant parts of a word.
43. What is a root?
44. Define prefix and suffix.
45. How would you analyze a word according to its significant parts?
46. What is pronunciation?
47. What is spelling?
48. Name and define the kinds of spelling.
49. Give rules for spelling.
50. Give a method of orthographic parsing.

ANSWERS TO QUESTIONS ON ORTHOGRAPHY.

1. Orthography treats of elementary sounds, letters, syllables and spelling.

Harvey's English Grammar, p. 7, art. 8.

2. An elementary sound is the simplest sound of the language.

Greene's English Grammar, p. 14, art. 1.

3. Forty-one.* These sounds are represented by twenty-six letters called the English Alphabet.

Clark's Normal Grammar, p. 11.

4. These sounds are divided into three classes;—*vocal*s, *sub-vocal*s and *aspirate*s.

CHART OF THE ELEMENTARY SOUNDS.

LONG VOCALS.

1. e, as in me, eve.
2. ē, “ serge, verge.
3. ā, “ aim, ale.
4. â, “ air, care.
5. ä, “ arm, farm.
6. ô, “ or, for.
7. ō, “ oak, no.
8. ō, “ ooze, do.

SHORT VOCALS.

9. ĭ, as in ill, it.
10. ě, “ ell, let.
11. ŏ, “ odd, not.
12. ŭ, “ up, sup.
13. ă, “ add, sad.
14. ă, “ ask, task.
15. ʉ, “ full, pull.

DIPHTHONGS.

- | | |
|--|---|
| <ol style="list-style-type: none"> 16. ĭ, as in ice, lie. 17. oi, “ oil, boil. | <ol style="list-style-type: none"> 18. ū, as in mute, tube. 19. ou, “ out, sound. |
|--|---|

* Authorities differ as to the number of elementary sounds. From the works which we have consulted, we find the number given varying from forty to forty-four.

SUB-VOCALS.—*Correlatives.*

- 20. b, as in boy, ebb.
- 21. d, " did, rod.
- 22. g, " go, rag.
- 23. g, " gem, judge.
- 24. v, " veer, valve.
- 25. th, " this, breathe.
- 26. z, " zone, zeal.
- 27. zh, " azure, seizure.

SUB-VOCALS.—*Liquids.*

- 28. l, as in lo, will.
- 29. r, " row, roar.
- 30. m, " moon, home.
- 31. n, " no, moon.
- 32. ng, " sing, ring.

SUB-VOCALS.—*Coalescents.*

- 33. w, as in we, wit.
- 34. y, " yet, you.

ASPIRATES.—*Explosives.*

- 35. p, as in pin, pipe.
- 36. t, " till, spot.
- 37. k, " kick, neck.
- 38. ch, " church, which.

ASPIRATES.—*Continuants.*

- 39. f, as in fife, stiff.
- 40. th, " think, breath.
- 41. s, " see, pass.
- 42. sh, " shine, wish.
- 43. h, " he, hat.
- 44. wh, " whence, what.

Science of Elocution, Hamill, pp. 22 and 23.

5. The vocals consist of pure tone only. The sub-vocals consist of tone united with breath. The Aspi-

rates consist of pure breath only. Correlatives are so called because each pair is formed with the same position of the organs. Liquids are so called because they flow readily into other sounds. Coalescents are so called because they unite with the sounds of other letters. Explodents are so called because they are incapable of prolongation. Continuants are so called because they are capable of prolongation.

Greene's English Grammar, pp. 14, 15 and 16.

6. A letter is a character that stands for a sound of the human voice used in speaking.

Quackenbos's English Grammar, p. 8.

7. Letters are divided,—

(a.) In respect to their forms, into *capitals* and *small letters*.

(b.) In respect to the sounds they represent, into *vowels* and *consonants*.

Greene's English Grammar, p. 18.

8. The forms of letters may be divided as to

(a.) Varieties into

1. *Italic*.

2. Roman.

3. Old English.

4. *Script*.

5. Ornamental.

(b.) Sizes into

1. Great Primer.

2. Columbian.

3. English.

4. Pica.

5. Small Pica.
6. Long Primer.
7. Bourgeois.
8. Brevier.
9. Minion.
10. Nonpareil.
11. Agate.
12. Pearl.
13. Diamond.
14. BRILLIANT.

As to sounds, letters are divided into vowels and consonants.

Clark's Normal Grammar, pp. 11, 12, 13 and 14.

9. The vowels represent pure vocal sounds. The vowels are a, e, i, o, u, and sometimes w and y.

The consonants represent sub-vocal sounds and aspirates. The consonants are b, c, d, f, g, h, j, k, l, m, n, p, q, r, s, t, v, w, x, y, z.

Id., p. 14.

10. W and y sometimes represent vocals, and are then vowels.

Id., p. 14.

11. Consonants are distinguished

as— $\left\{ \begin{array}{l} \text{Semi-vowels and} \\ \text{Mutes.} \end{array} \right.$

Id., p. 14.

12. Semi-vowels may represent sounds without the aid of a vowel. They are f, h, j, l, m, n, r, s, v, x, z, and c and g soft. Mutes (b, d, k, p, q, t, and c and g hard) can not be sounded without the aid of a vowel.

Id., p. 14.

13. L, m, n, and r, are called *Liquids*, because the sounds represented by them *flow* readily into similar or other sounds.

Id., p. 14.

14. (a.) Generally a letter represents a peculiar sound.

(b.) Some letters represent more than one sound.

(c.) Sometimes different letters represent the same sound.

(d.) Sometimes a letter is used that does not represent any sound.

Id., p. 14.

15. Silent letters are used—

(a.) To modify the sounds of other letters.

(b.) To denote the origin or definition of the word.

Id., p. 14.

16. A letter is said to be *long* when its sound can be protracted at will, as *a* in *say*—ay.

A letter is said to be *short* when the sound represented by it can not be protracted, as *a* in *hat*.

Id., p. 15.

17. Some letters combine—

(a.) To form one sound.

(b.) To form a combination of sounds.

Id., p. 15.

18. The *name* of a letter is the term or appellation by which it is known.

Greene's English Grammar, p. 18.

19. The *power* of a letter is the elementary sound which it represents.

Id., p. 18.

20. When two or more letters unite, to represent a union of elementary sounds, they form a *combination* of letters.

Id., p. 23.

21. A final letter is one that ends a word. T is final in *rat*.

Id., p. 23.

22. The union of two vowels in one syllable is called a *diphthong*; the union of three vowels in one syllable is called a *triphthong*.

Id., pp. 23-24.

23. Diphthongs are divided into two classes, *proper* and *improper*.

A *proper* diphthong is one in which both vowels are sounded.

An *improper* diphthong is one in which one of the vowels is silent.

Triphthongs are also divided into two classes, *proper* and *improper*.

A *proper* triphthong is one in which the three vowels are sounded.

An *improper* triphthong is one in which one or two of the vowels are silent.

Id., pp. 23-24.

24. Two or more consonants are said to unite when their sounds coalesce.

Id., p. 24.

25. Any consonant sound may unite with a vowel sound.

Id., p. 25.

26. A *Digraph* is a union of two vowels in one syllable, in which only one of the vowels is sounded. A *Trigraph* is a union of three vowels in one syllable, not all of which are sounded.

Clark's Normal Grammar, p. 15.

27. A syllable is a sound or a combination of sounds uttered with a single impulse of the voice.

Butler's Practical and Critical Grammar, p. 18.

28. The essential part of a syllable is a vowel.

Greene's English Grammar, p. 25.

29. A syllable may consist,—

(a.) Of a vowel.

Ex.—*A*-cre, *ei*-ther.

(b.) Of a vowel with one or more consonants prefixed.

Ex.—*Ba-sis, bri-er, phthi-sis.*

(c.) Of a vowel with one or more consonants affixed.

Ex.—*In, elf, inter-ests, earths.*

(d.) Of a vowel with one or more consonants both prefixed and affixed.

Ex.—*N-oo-n, tr-u-th, thr-u-sts.*

Id., p. 25.

30. MODELS FOR ANALYZING SYLLABLES.

An is a syllable consisting of two elements :

A is the essential element, it is a vowel. (Give its sound.)

N is a consonant, and represents a sub-vocal; it is affixed to *a*, which it modifies. (Give its sound.)

Break is a syllable consisting of three parts:—

Ea is the essential part,—it is a diphthong (why ?), improper (why?); *e* is silent,—*a* only is sounded. (Give its sound.)

Br is a union of two consonants, both representing sub-vocals, *b* and *r*, which are prefixed to *ea*. (Give their sounds separately, then together.)

K is a consonant representing an aspirate, and is affixed to *ea*. [Give its sound.]

Analyze the following syllables and describe each element:—

Kite, dog, numb, boat, friend, truth, day, wax, hat, view, sound, aid, meet, suit.

Id., p. 26.

31. A word is a syllable or a combination of syllables used as the sign of some idea.

Butler's Practical and Critical Grammar, p. 18.

32. I. Words are classified according to the number of syllables they contain, as follows :

1. A word of one syllable is called a *monosyllable*.

Ex.—*Boy, pen, tree.*

2. A word of two syllables is called a *dissyllable*.

Ex.—*Nature, faith-ful.*

3. A word of three syllables is called a *trisyllable*.

Ex.—*Nat-u-ral, faith-ful-ness.*

4. A word of four or more syllables is called a *polysyllable*.

Ex.—*Un-nat-u-ral, un-faith-ful-ness.*

Greene's English Grammar, p. 28.

II. Words are divided according to their formation into simple, compound, primitive and derivative.

1. A Simple Word is one which is not formed by uniting two or more words ; as, *hand, paper, father.*

2. A Compound Word is one which is formed by the union of two or more simple words ; as, *hand-machine, newspaper.* The words forming a compound are sometimes connected by the hyphen [-] ; as, *father-in-law.*

3. A Primitive Word is one which is not formed from any other word in the same language, but is in its first or simplest form ; as, *sin, wind, lady.*

4. A Derivative Word is one which is formed from a primitive word by some change, or by prefixing or suffixing another syllable or word ; as, *sinful, windy.*

Fewsmith's English Grammar, p. 13.

33. Accent is a stress of voice laid on a certain syllable when a word is uttered.

Quackenbos's English Grammar, p. 12.

34. The syllable that receives the stress is said to be accented.

Id., p. 12, art. 14.

35. It may be denoted by a mark called the Acute Accent ['], placed above it to the right ; as, *lem'on, engrave'.*

Id., p. 12, art. 14.

36. A difference of accent sometimes serves to distinguish words spelled alike but differing in meaning. Thus *Au'gust* is the eighth month ; *august'* is grave, majestic.

Id., p. 12.

37. In some compounds, there is but one accent ; as *gen'tleman*, *praise'worthy*. In others, each of the words compounded retains its accent ; as, *writ'ing-mas'ter*, *man'y-col'ored*.

Id., p. 13, art. 17.

38. When there are more accents than one, the parts of the compound are generally connected with a short horizontal line [—], called the Hyphen. When there is but one accent in the compound, the hyphen is commonly omitted.

Id., p. 13.

39. Every word of more than one syllable has one of its syllables accented.

Greene's English Grammar, p. 28, art. 7.

40. The accented syllable may be either the first, the last, or a middle syllable.

Id., p. 28, art. 8.

41. Two. Primary and Secondary.

Ex.—*In''defat'igable*, *in''comprehen'sible*.

Id., p. 28, art. 9.

42. A word in reference to its significant parts must contain a *root*, and *may* contain a *prefix* or a *suffix*.

Id., p. 28, art. 10.

43. A *root*, or *radical*, is either a word, or that part of a word which is modified by a prefix or a suffix.

Ex.—*Fair*, *un-fair*, *un-fair-ness*.

Id., p. 29, art. 11.

44. A prefix is that part of a word which is placed before the root to modify its meaning.

Ex.—*Re*-turn, *pre*-pay, *un*-fit.

A *suffix* is that part of a word which is placed after a root to modify its meaning.

Ex.—Heart *less*, child-*hood*, good-*ness*.

Id., p. 29, arts. 12 and 13.

45. In analyzing a word according to its significant parts, point out the root, then the prefix or the suffix, and show how it modifies the root.

Id., p. 29.

46. Pronunciation is the utterance of the sounds of a word, with proper articulation and accent.

Wolfard's Practical Speller, p. 11.

47. Spelling is the act of expressing, in proper order, according to established authority, the letters or sounds of which a word is composed.

Id., p. 10.

48. There are three kinds of spelling; viz: Phonic, Oral, and Written.

Phonic Spelling is the expression, in proper order, of the sounds of which a word is composed.

Oral (Orthographic) Spelling is the expression by the mouth, in proper order, of the letters of which a word is composed.

Written Spelling is the expression, in written characters, in proper order, of the letters of which a word is composed.

Id., pp. 10 and 11.

49.

I. GENERAL RULES FOR SPELLING.

1. Write no word unless sure of its orthography and signification.
2. Consult the dictionary in case of doubt.
3. Apply the rules for derivatives.

II. SPECIAL RULES FOR SPELLING.

1. Words which *end* with a *consonant*, preceded by a single vowel, and which are accented on the last syllable, double the final letter on taking an additional syllable beginning with a vowel.

Remark.—*X* and *h* are never doubled.

2. Words which end with a consonant, preceded by a diphthong, or a digraph representing a vowel sound, and words which are *not* accented on the last syllable, do not double the final letter on taking an additional syllable.

Exceptions.—Many words which are not accented on the last syllable, ending with *s* or *l*, often double the final consonant contrary to analogy; as, *travel*, *travelling*.

3. Words which end with *e* generally retain it on taking an additional syllable beginning with a consonant.

Exceptions.—*Judgment*, *lodgment*.

Remark.—When the *e* is preceded by a vowel, it is sometimes retained and sometimes dropped; as, *true*, *truly*.

4. Words which end with *e* generally omit it on taking an additional syllable beginning with a vowel.

Exceptions.—Words ending with *ce* or *ge* retain *e* before the terminations *able* and *ous*, to preserve the soft sound of *c* and *g*; as, *peace*, *peaceable*; *courage*, *courageous*, etc. *Dyeing* retains the *e* to distinguish it from *dying*.

5. Words which end with *ie* drop the *e* and change *i* into *y* on taking the syllable *ing*.

6. Words which end with *y*, preceded by a consonant, change *y* into *i* on taking an additional syllable.

Exceptions.—Before *ing*, *y* is retained; as, *pity*, *pitying*.

7. The digraph *ei* follows *c* soft; *ie* is found after

the other consonants. *Ei* begins words; *ie* is found at the end of words.

Holbrook's English Grammar, pp. 22, 24, and 25, arts. 110 and 116.

50. The following method of orthographic parsing is by far the best method we have ever seen:

Words analyzed: Pin and Impossibility.

Pin is a simple, primitive monosyllable. Spelled orthographically [naming the letters] p, i, n, and phonically [enunciating the sounds] p, ĭ, n.

Impossibility is a simple derivative polysyllable, accented on the fourth and second syllables. Possible, the base of the word, is modified by the prefix *im*, signifying *not*, and the suffix *ity*, signifying the state or condition. The word signifies, "that which cannot be." It is spelled, orthographically, i, m, p, o, s, s, i, b, i, l, i, t, y, and phonically, ĭ, m, p, ȯ, s, ĭ, b, ĭ, l, ĭ, t, ĭ.

I is a vowel, the base of the first syllable, representing its own short sound ĭ, [enunciate,] which is a short, simple vocal.

M is a consonant, and the consequent of the base of the first syllable, representing its own sound, m; [enunciate,] which is a sub-vocal, obstructed at the lips by a partial contact of the organs, producing a labial, a continuant, and a nasal.

P is a consonant and the antecedent of the base of the second syllable, representing its own sound, p; [enunciate] which is an aspirate, obstructed at the lips by a perfect contact of the organs, producing a labial and an abrupt.

O, the base of the second syllable, is a vowel, representing its own short sound ȯ; [enunciate,] which is a short, simple vocal.

S is a consonant, and the consequent of the base of the second syllable, representing its own proper sound, s; [enunciate,] which is an aspirate, obstructed at the gums by a partial contact of the organs, producing a dental and a continuant.

I, the base of the third syllable, is a vowel, representing its own short sound, ĭ; [enunciate,] which is a short, simple vocal.

B is a consonant, and the antecedent of the base of the fourth syllable, representing its own proper sound, b; [enunciate,] which is a sub-vocal, obstructed at the lips by a perfect contact of the organs, producing a labial and an abrupt.

I, the base of the fourth syllable, is a vowel, representing its own short sound, ĭ; [enunciate,] which is a short, simple vocal.

L is a consonant, and the consequent of the base of the fourth syllable, representing its own proper sound, l; [enunciate,] which is a sub-vocal, obstructed at the hard palate by a partial contact of the organs, producing a palatal, a continuant, and a liquid.

I, the base of the fifth syllable, is a vowel, representing its own short sound, ĭ; [enunciate,] which is a short, simple vocal, modified at the teeth.

T is a consonant, and the antecedent of the base of the sixth syllable, representing its own proper sound, t; [enunciate,] which is an aspirate, obstructed at the teeth or gums by a perfect contact of the organs, producing a dental and an abrupt.

Y, the base of the sixth syllable, is a vowel, representing the short sound of i, ĭ; [enunciate,] which is a short, simple vocal, modified at the teeth.

Id., pp. 26, 29, and 30, arts. 119, and 121.

QUESTIONS ON READING.

1. Define Reading.
2. What mental qualifications must a good reader possess and employ?
3. What are the physical requisites for good reading?
4. What, then, does good reading demand?
5. What objects are to be aimed at in the study and teaching of reading?
6. What is Articulation?
7. How can a good articulation be acquired?
8. What is Phonetic Analysis?
9. What is an elementary sound?
10. Into what classes are the elementary sounds of the English language divided?
11. Define Vocals.
12. Give some directions for articulating vocal sounds.
13. Give a chart of vocal sounds.
14. Define Subvocals.
15. Give directions for articulating Subvocal sounds.
16. Give a chart of Subvocal sounds.
17. Define Aspirates.
18. Give directions for articulating Aspirates.
19. Give a chart of Aspirate sounds.
20. Give a list of the most common faults in Articulation.

21. Give a good plan for explaining Elementary sounds to beginners.
22. How are the divisions of syllables marked?
23. Give a plan for drilling pupils in Articulation.
24. What is Emphasis?
25. What is the object of Emphasis?
26. How is this accomplished?
27. Name and define the kinds of Emphasis.
28. How are emphatic words printed?
29. What is Accent?
30. How is the Accented syllable designated?
31. Name and define the kinds of Accent.
32. What are Inflections?
33. Define each.
34. Give rules for the use of Inflections.
35. What is a Series?
36. What is a *commencing* Series, and what a *concluding* Series?
37. What is a Circumflex?
38. Give an outline of the subject of vocal culture.
39. What is Transition?
40. What is Monotone?
41. Define Monotony.
42. What is Modulation?
43. How is the voice modulated?
44. How many degrees of variation in pitch?
45. What can you say of quantity?
46. What is the difference between quantity and pitch?
47. What is quality?
48. What is force?
49. What is the difference between force and emphasis?
50. What is stress?

51. What is cadence?
52. What is climax?
53. Define grouping.
54. What is personation?
55. What are rhetorical pauses?
56. Name the rhetorical points.
57. Name and define the other classes of points.
58. Give rules for the use of capitals.
59. Give a principle of reading that will admit of general application.

ANSWERS TO QUESTIONS ON READING.

1. Reading is the interpretation and expression of the thoughts, sentiments, and feelings of an author.

Fertich's Instructive Elocution, p. 17.

2. A good reader or speaker must possess and employ—

1. A clear conception.
2. A vivid imagination.
3. Real sympathy.
4. Good imitation.
5. Vocal power.
6. Artistic skill.
7. Good judgment.

Id., p. 10.

3. The requisites of good reading are—

1. Distinct articulation.
2. Full and free respiration.
3. Perfect control of a clear, full, round, musical tone of voice.
4. Graceful and expressive action.
5. Cultivated taste and judgment.

Hamill's Science of Elocution, p. 19.

4. Good reading demands, in a *special* manner, attention to the following particulars, viz.—

ARTICULATION, ACCENT, EMPHASIS, INFLECTION, MODULATION, and PAUSES.

Sander's Rhetorical Reader, p 13.

5. The objects to be aimed at in the study of reading, and of course in teaching it, are—

1. The acquisition of general knowledge.
2. The acquisition of a love for reading.
3. The improvement of the memory, judgment and taste.

4. Improvement of the social faculties.

5. Improvement of the health.

6. A graceful carriage and address.

7. A preparation for public life.

8. The prevention and correction of improprieties.

Holbrook's Normal Methods, pp. 348, 349, 350.

6. Articulation is the utterance of the elementary sounds of a language, and of their combinations in words.

Harvey's Graded-School Fifth Reader, p. 10.

7. To acquire a good articulation, attention must be paid to exercises upon elementary sounds and their combinations, and to the phonetic analysis of syllables and words.

Id., p. 10.

8. Phonetic Analysis is the separation of syllables and words into the elementary sounds of which they are composed.

Id., p. 12.

9. An elementary sound is a simple, distinct sound made by the organs of speech.

Id., p. 10.

10. The elementary sounds of the English language are divided into *Vocals*, *Subvocals*, and *Aspirates*.

Id., p. 10.

11. Vocals consist of pure tone. A *diphthong* is a union of two vocals, commencing with one and ending

with the other. Vowels are the prominent elements of all words.

Id., p. 10.

12.

1. Let the mouth be open, and the teeth, tongue, and palate in their proper position.

2. Pronounce one of the words in the *Chart* in a forcible, affirmative tone, several times in succession.

3. Drop the subvocal or aspirate sounds which precede or follow the vowel, and repeat the vowels alone.

4. Have the class, at first, repeat the words and sounds in concert.

5. Have each pupil to articulate them separately.

Id., p. 11.

CHART OF VOCAL SOUNDS.

Long Sounds.

13.

A, ā, as in āte, lāte, māte, bāker, lābor, fāvor.

A, â, as in âir, fâir, hâre, mâre, shâre.

A, ä, as in äre, fär, ärk, dählia, härp, härsh.

A, ă, as in ăfter, brănch, păss, plăster.

A, ą, as in ąll, ąll, ąul, ąall, wąlk.

E, ē, as in ēve, wē, dēep, sēre, hēar, recēive.

E, ẽ, as in ẽrr, ẽrst, ẽrmine, prefẽr.

I, ī, as in īre, tīme, tīde, combīne, fīle, wrīte.

O, ō, as in ōver, nō, tōld, vōte, contrōl, mōde.

Oo, oo, as in dōom, cōol, blōom, mōon, grōom.

U, ū, as in ūse, ūnit, mūsic, refūse, involūte.

U, û, as in ûrn, ûrge, bûrn, fûr.

U, ư, when preceded by r, as in rưle, frưgal, trưe.

Short Sounds.

A, ă, as in căt, ăt, măn, ănd, nătural.

E, ẽ, as in ẽlk, rěnt, děnse, wěn, flěd.

I, ĩ, as in ĩnk, wĭt, đĩn, whĩm, trĩvĩal.

O, ǒ, as in ǒn, dǒt, rǒb, mǒral, resǒlve.

U, ũ, as in ũs, ũgly, bŭt, mŭg, hŭsky.

Oo, ǒǒ, as in gǒöd, hǒök, cǒöper, fǒöt, bǒök.

Diphthongs.

Oi, oi, as in oil, coin, choice, quoit.

Ou, ou, as in bound, proud, out, rouse, cow.

Id., pp. 11-12.

15.

1. Pronounce distinctly and forcibly, several times in succession, words in which they occur as final elements.

2. Drop the other sounds, and repeat the subvocals alone.

3. Repeat the words and elements, at first in concert; then separately.

Id., p. 12.

CHART OF SUBVOCAL SOUNDS.

16. *Subvocals with Correlatives.*

B, b, as in ěbb, rūb, bābe, tūbe, rōbe.

D, d, as in ädd, bēd, rōd, būd.

G, g, as in năg, rīg, fǒg, bēg, rūg.

J, j, as in jŭdge, nŭdge, lēdge, grŭdge.

V, v, as in rāve, gĭve, rōve, glōve.

Th, th, as in bēnēath, brēathe, wĭth, thĭne.

Z, z, as in rāze, sĭze, lqse, rōse, ūse.

Zh, zh, as in mēasure, āzure, lēisure.

Subvocals with no Correlatives.

N, n, as in măn, sôn, fĭn, rŭn.

M, m, as in nāme, hōme, grĭm, flŭme.

Ng, ng, as in săng, flĭng, wrǒng, rŭng.

L, l, as in făll, mĭll, rōll, gŭll.

R, r, as in făr, sĭr, sōar, slŭr.

R, r, as in rēar, drŭm, rōam, rĭll.

W, w, as in weâr, wœf, wîle, wîsh, will.

Y, y, as in yēar, yēs, you, yeōmān.

Id., pp. 12-13.

17. Aspirates consist of breath only, modified by the vocal organs.

Id., p. 13.

18.

1. Pronounce, several times in succession, words in which aspirate sounds occur as initial or final elements.

2. Drop the other sounds, and repeat the aspirates alone.

3. Repeat the words and elements, at first, in concert; then separately.

Id., p. 13.

19. CHART OF ASPIRATE SOUNDS.

F, f, as in lîfe, quâff, skîff, scöff, rüff.

H, h, as in hāy, hîve, hōpe, hūmîd.

K, k, as in rāke, böók, rîck, mûck, röck.

P, p, as in răp, lîp, hōp, ŭp, gällop.

S, s, as in mæss, kîss, löss, füss.

T, t, as in ät, flît, mōte, lûte, sŭbmît.

Sh, sh, as in răsh, wîsh, bösh, mŭsh, shōre.

Ch, ch, as in mătch, rîch, rōach, mŭch.

Th, th, as in thănk, löth, thrōne, rŭth, wrôth.

Wh, wh, as in whāle, whæt, whîp, why, whîmper.

Id., p. 13.

20.

1. Suppression of vocal sounds in unaccented syllables.

2. Suppression of subvocal and aspirate sounds.

3. Incorrect articulation of vocal sounds.

4. Omission and addition of syllables.

5. Blending the end of one word with the beginning of the next. *Id.*, pp. 18, 19 and 20.

21. Take, for example, the word *map*, in which there are as many sounds as there are letters. Print it on the board :

MAP.—m-m-m a-a-a p-p-p map.

After the separate sounds of this word are perfectly understood, select one with a new element in it, and exercise pupils on that; first calling on them to say whether it has as many sounds as it has letters.

MAN.—m-m-m a-a-a n-n-n man.

Proceed now to illustrate the fact that, owing to the poverty of our alphabet and the capricious irregularities in our modes of forming words by letters, the same letter, *a*, is used for a variety of sounds.

This may be shown in *make*, *car*, *fall*, etc. Show that one device for helping us out has been to attach a silent vowel letter (as in *make*=m-a-k) to indicate the long sound of *a* in a large class of words.

MAKE.—m-m-m a-a-a k-k-k make.

In the word *car* we have the sounds of *k*, *a* in *fath-er* and smooth or untrilled *r*.

CAR.—k-k-k a-a-a r-r-r car.

Here it may be illustrated that the presence of *r* should give a slight, but not a too formal, difference to our enunciation of such words as *alms* and *arms*, *balm* and *farm*.

In the word *thaw* there are only two elementary sounds, namely, aspirate *th* and the sound of *a* in *fall*. Call upon pupils to designate the elementary sounds in the following words: *trough*(trof), *enough*, *physic*, *child shine*, *thin*, *thine*, *sleigh*, *calf*, *autumn*, *awe*, *aught*, *height*, *freight*, *prove*, *prone*, *laugh*, *sphere*.

New American Fourth Reader, pp. 6-7.

22. By pauses and repetitions.

Id., p. 7.

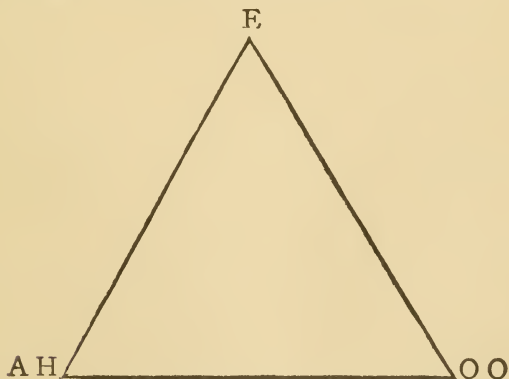
23.

First. Pronounce the vowel ē, extending the lips as much as possible sidewise, and showing the tips of the teeth.

Second. Pronounce ah, dropping the jaw and opening the mouth to its widest extent.

Third. Pronounce oo (as in cool) contracting the lips.

Then, the teacher having drawn upon the black-board a triangle with the three sounds indicated at the angles, let him pass the "pointer" around in a circle, touching at the angles, and require the pupils to utter the vowels, as he indicates them, in rapid succession, *continuously*, that is, without pausing between them. Having gone around three or four times in one direction, make a signal for the pupils to stop; then taking a fresh breath, reverse the exercise.



Proceed in like manner, taking each of the other angles as a starting point. We shall thus have repetitions of each of the following: *E-ah-oo; e-oo-ah; ah-e-oo; ah-oo-e; oo-ah-e; oo-e-ah.*

After the above has been practised for a minute or two, exercises like the following may be taken up immediately. The teacher pronounces one word at a time with the utmost precision, and requires the pupils to repeat with an exaggerated movement of the lips and jaws. Next, phrases, and finally complete sentences, are uttered, great care being taken to give elastic spring and play to the muscles of articulation. The one injunction which needs to be enforced upon the mumblers is, **OPEN THE MOUTH AND MOVE THE LIPS.**

ARTICULATION OF SINGLE WORDS.

I . . know . . of . . no . . way . . of . . judging
 . . of . . the . . future . . but . . by . . the past.

ARTICULATION OF PHRASES.

In every period of life . . the acquisition of knowledge . . is one of the most pleasing employments . . of the human mind.

ARTICULATION OF SENTENCES.

The greater the difficulty, the more glory there is in surmounting it; skilful pilots gain their reputation from storms and tempests.

Monroe's Fifth Reader, pp. 25, 26 and 27.

24. Emphasis is a special stress of voice upon one or more words of a sentence, to give them the prominence and importance the author intends.

Graded School Fifth Reader, (Harvey), p. 32.

25. The object of emphasis is to attract particular attention to the word or phrase upon which it is placed, thus indicating that the idea intended to be conveyed depends very much upon that word or phrase.

Id., p. 32.

26. This is sometimes accomplished by an unusual lowering of the voice, even to a whisper; but most fre-

quently by an increased stress laid upon the word or phrase to be emphasized.

Id., p. 32.

27. Emphasis is either *absolute* or *relative*.

When the emphasis is independent of any contrast or comparison with other words or ideas, it is called *absolute emphasis*.

Where there is antithesis, either expressed or implied, the emphasis is called relative.

Id., pp. 32 and 33.

28. Emphatic words are often printed in *Italics*. When, however, different degrees of emphasis are to be denoted, the higher degrees are designated by the use of Capitals, LARGER or SMALLER, according to the degree of intensity.

Sander's Rhetorical Reader, p. 22.

29. Accent is that stress of voice by which one *syllable* of a word is made more prominent than others.

Id., p. 21.

30. The accented syllable is designated thus: (') ; as, *com-mand'-ment*.

Id., p. 21.

31. Primary and Secondary. The more forcible stress of voice, is called the *Primary Accent*; and the less forcible, the *Secondary Accent*.

Id., p. 21.

32. Inflections are slides of the voice upward or downward. Of these there are two: the *rising* inflection and *falling* inflection.

McGuffey's Eclectic Fifth Reader, p. 13.

33. The RISING INFLECTION is that in which the voice slides *upward*, and is marked thus (') ; as, Did you walk' ? (Did you walk ?)

The FALLING INFLECTION is that in which the voice

slides *downward*, and is marked thus ('); as, I did not walk'. (I did not walk.)

Id., p. 13.

34.

1. Emphatic words, and words denoting a completion of the sense, generally require the falling inflection.

2. Words concluding negations and direct questions, or words used by way of direct address, require the rising inflection; but if repeated emphatically, the falling inflection is proper.

3. Words concluding indirect questions, require the falling inflection; but, if repeated emphatically, the rising inflection is proper.

4. Each member of a commencing series generally requires the falling inflection, except the last, which should have the rising inflection.

5. Each member of a concluding series generally requires the falling inflection, except the last but one, which should have the rising inflection.

Fertich's Instructive Elocution, pp. 24, 25, 26 and 27.

35. A *series* is a succession of particulars in a discourse.

Id., p. 26.

36. A series in the beginning or middle of a sentence is called a *commencing* series. A series which concludes a sentence is called a *concluding* series.

Id., p. 26.

37. The circumflex is a union of the two inflections on the same word, beginning either with the *falling* and ending with the *rising*, or with the *rising* and ending with the *falling*.

Sander's Rhetorical Reader, p. 34.

38.

ELEMENTS OF EXPRESSION.

Quality.	Pure Tone.	Pitch.	{ Low. Very Low. Middle. High. Very High. Transitions
	{ Effusive. Expulsive. Explosive.		
	Orotund.		
	Aspirated.		
	Guttural.		
	Nasal.		
	Oral.		
Force.	Subdued.	Quantity.	{ Long. Medium. Short.
	Moderate.		
	Energetic.		
	Impassioned.		
	{ Free. Suppressed.		
Stress.	Radical.	Movement.	{ Slow. Moderate. Brisk. Rapid.
	Median.		
	Vanishing.		
	Compound.		
	Tremor.		

Cole's Institute Reader, p. 113.

39. Transition is change in the manner of expression.

Fertich's Instructive Elocution, p. 31.

40. The monotone is an unvaried tone throughout a sentence or discourse.

Id., p. 35.

41. Monotony is a frequent occurrence of the same tone or manner, without reference to the sense.

Id., p. 33.

42. Modulation implies those variations of the voice, heard in reading or speaking, which are prompted by the feelings and emotions that the subject inspires.

Sander's Rhetorical Reader, p. 35.

43. The voice is modulated in *three* different ways; that is, from *high* to *low* tones, and the reverse.

Secondly, it is varied in *quantity*, or in *loudness* or *volume* of sound.

Thirdly, it is varied in *quality*, or in the *kind* of sound expressed.

Id., p. 35.

44. Although the voice is capable of as many variations in speaking, as are marked on the musical scale (8), yet for all the purposes of ordinary reading, it will be sufficiently exact if we make but *three* degrees of variation, viz., the *Low*, the *Middle*, and the *High*.

Id., p. 36.

45. QUANTITY is two-fold; consisting in FULLNESS or VOLUME of sound, as *soft* or *loud*; and in TIME, as *slow* or *quick*. The former has reference to STRESS, the latter to MOVEMENT.

Id., p. 37.

46. Quantity has reference to *loudness* or *volume* of sound, and pitch to the *elevation* or *depression* of a tone.

Id., p. 38.

47. QUALITY has reference to the *kind* of sound uttered.

Id., p. 39.

48. FORCE is the degree of energy with which sounds are uttered.

Fertich's Instructive Elocution, p. 30.

49. Emphasis differs from force, in the fact that the former is relative, while the latter is absolute.

Id., p. 30.

50. The manner in which Force is applied, in reading and speaking, is termed Stress.

Cole's Institute Reader, p. 125.

51. CADENCE is the dropping of the voice at the close of the sentence, which indicates that the sense is complete.

Hamill's Science of Elocution, p. 152.

52. CLIMAX is an utterance gradually increasing in intensity, and changing in pitch and movement.

Id., p. 167.

53. GROUPING is that nice modulation and adaptation of the voice to the sentiment expressed which renders the utterance not only more impressive, but more pleasing to the ear.

Id., p. 170.

54. Personation is the representation of the tones and manner of other persons.

Fertich's Instructive Elocution, p. 34.

55. In all discourse, printed or written, certain characters are used to show something about its meaning which cannot so conveniently be expressed by means of words. These characters are called Rhetorical Points.

Day's Art of English Composition, p. 308.

56. The first class of Rhetorical Points includes,

1. *The Period (.)*;
2. *The Colon (:)*;
3. *The Semicolon (;)*;
4. *The Comma (,)*.

The second class of Rhetorical Points includes,—

1. *The Exclamation Point (!)*;
2. *The Interrogation Point (?)*;
3. *The Dash (—)*;
4. *Quotation Marks (" " and ' ')*;
5. *Marks of Parenthesis ()*;
6. *Brackets []*.

Id., pp. 308 and 320.

57. Etymological Points are used to indicate something in regard to the formation, use, or omission of words or parts of words.

They are,

1. *The Apostrophe* ('), used to show the omission of a letter or letters; as, John's.

2. *The Caret* (^), to show some omission in a manuscript; as,

come

"The king is to marshal us."

^

3. *The Diaeresis*, to mark the separation of contiguous vowels; as, preëngage.

4. *Marks of Quantity*, to show that the vowel is long or short, as majör.

5. *Marks of Accent*, to mark either the accentuation of a syllable, or the intonation of the voice; the grave (`), the acute ('), and the circumflex (^); as, bitu'men, insist', gôld.

6. *The Hyphen*, used, 1. To separate syllables; as al-ge-bra; 2. To unite the parts of a compound word.

7. *The Period*, to show the abbreviation of a word; as, lat. for latitude.

Points for reference are used to refer the reader to some other place in the page or the book. They are the following, which are generally used in the order given, and may be doubled if necessary:—

The Asterisk (*);

The Obelisk or Dagger (†);

The Double Obelisk (‡);

The Section (§);

Parallels (||); and

The Paragraph (¶).

Id., pp. 326–327.

58. Capital letters are used:

1. To begin the first word of a sentence.
2. To begin all proper names.
3. To begin all titles of honor.
4. To begin the first word of every line of poetry.
5. To begin the names of objects personified.
6. In writing the pronoun I, and interjection O.
7. To begin appellations of the Deity.
8. To begin the names of the days of the week,
and of the months.
9. To begin direct quotations.
10. To begin words derived from proper names.
11. To begin the chief words in the titles of books,
headings of divisions of books, chapters, discourses, etc.
12. To begin words of special importance.

Holbrook's Grammar, p. 30.

59. "Be sure you understand what you read, and endeavor to express the sentiments of the author as you would express the same if they were *your own*, and you were *talking*."

Harper's United States Sixth Reader, p. 24.

QUESTIONS ON ARITHMETIC.

1. Define Arithmetic as a *Science* and as an *Art*.
2. Upon what is Arithmetic founded, and how are its operations carried on?
3. What is Arithmetical language? How many kinds?
4. In how many ways may numbers be written?
5. In the *Arabic System* of Notation numbers are expressed according to what principle?
6. Why is the Arabic System of Notation also called the Decimal System?
7. What is the *Scale* of a system of Notation? What is the *radix* of the scale?
8. Upon what is the Arabic System of Notation based?
9. How are numbers represented in the Roman Notation?
10. What is the effect of placing a bar over a letter?
11. What is the fundamental synthetic process of Arithmetic?
12. Give the principles of Addition.
13. How many and what are the cases in Addition?
14. Why do we write the numbers as suggested by the Arithmetics, and why do we begin at the right hand to add?

15. What is the fundamental analytical process of Arithmetic?

16. Give the principles of subtraction.

17. Name and define the cases in subtraction.

18. In how many ways may we obtain the elementary differences in subtraction?

19. Name the principles of Multiplication.

20. Why are the multiplicand and multiplier taken together called factors?

21. What is Division?

22. What are the *terms* of Division?

23. Upon what does the Quotient depend?

24. Show *how* the *value* of the Quotient depends on the relation of dividend and divisor.

25. What principles of Division are deduced from these relations?

26. What two theories regarding the Quotient, as to the quality of abstractness or concreteness?

27. How are numbers classified?

28. Define these classes of numbers.

29. What are the factors of a number?

30. What is a prime factor?

31. What is factoring?

32. What is a divisor or measure of a number?

33. What is a multiple of a number?

34. What is a common divisor and a common multiple?

35. Define Greatest Common Divisor and Least Common Multiple.

36. What is a fraction?

37. How does the unit of a fraction differ from a fractional unit?

38. What is a Common fraction?

39. How are fractions divided?

40. Define Proper and Improper, and Simple, Compound, and Complex Fractions.
41. Name and define the terms of a fraction.
42. Is a Fraction a Number?
43. Is a Fraction a Denominate Number?
44. What is a mixed number?
45. What is the reciprocal of a number?
46. Give an outline of the cases of fractions.
47. What two methods are there of developing fractions?
48. What is a continued fraction?
49. What is a Decimal fraction?
50. In what two ways may a decimal fraction be expressed?
51. What is the first thing to be considered in the treatment of decimals?
52. Give rules for reading and writing decimals.
53. What will the denominator of a decimal always be?
54. Upon what does the value of a decimal figure depend?
55. How do decimals increase and decrease?
56. What is a pure decimal?
57. What is a mixed decimal?
58. What is a complex decimal?
59. From what are the *names* of decimal orders derived?
60. What is a circulating decimal?
61. What is a denominate number?
62. What is a simple denominate number?
63. What is a compound denominate number?
64. What is a standard unit?
65. Name the quantities of magnitude which give rise to denominate numbers.

66. What is the standard unit of value?
67. What is the standard unit of weight?
68. What is the standard unit of length?
69. What is the standard unit of surface?
70. What is the standard unit of volume?
71. What is the standard unit of capacity?
72. What is the standard unit of angles?
73. What is the standard unit of time?
74. Define the metric system of measurement.
75. What is Percentage?
76. What is the difference between rate and rate per cent?
77. Name and define the elements involved in percentage.
78. How is per cent. expressed?
79. Give general rules for computations in percentage.
80. Give the applications of percentage.
81. Define profit and loss.
82. Define commission ; brokerage.
83. Define agent, factor, broker, consignee, and consignor.
84. Define duties.
85. What is the difference between *specific* duties and *ad valorem* duties?
86. What is a tariff?
87. What is insurance?
88. Name and define the kinds of insurance.
89. Define underwriter, policy and premium.
90. Define a tax.
91. What is a bond? What is a coupon? Name the three principal classes of United States Bonds.
92. Define interest.

93. What is the difference between simple and compound interest?
94. What is a note?
95. Name and define the kinds of notes.
96. What is a draft?
97. Define discount and present worth.
98. What is the difference between true discount and bank discount?
99. What is ratio?
100. What are the terms of the ratio?
101. In how many and in what ways may the ratio of two numbers be expressed?
102. What is the difference between a simple ratio and a compound ratio?
103. What is a proportion?
104. How is a proportion formed?
105. What is a continued proportion?
106. How many antecedents in a proportion? How many consequents?
107. How are ratio and proportion distinguished?
108. What is a simple proportion?
109. What is a direct proportion?
110. What is an inverse proportion?
111. What is a compound proportion?
112. Define partnership.
113. What is the difference between simple and compound partnership?
114. What is analysis?
115. Define exchange.
116. What is a bill of exchange?
117. How many parties to a transaction in exchange?
118. Name and define these parties.
119. What is an indorsement?
120. What is an acceptance?

- 121. How is this obligation acknowledged?
- 122. What is a bankrupt?
- 123. What is the difference between a bankrupt and an insolvent?
- 124. Define bankruptcy.
- 125. Define aliquot parts.
- 126. Explain how distance is measured by time.
- 127. How do you find the difference in time corresponding to any difference in longitude?
- 128. How do you find the difference in longitude corresponding to any difference in time?
- 129. How do you find the time at one place when the time at another place and their difference of time are known?
- 130. How do navigators determine their longitude at sea?
- 131. What is alligation?
- 132. What is the difference between alligation medial and alligation alternate?
- 133. What is an annuity?
- 134. Name and define the kinds of annuities.
- 135. What is involution?
- 136. What is the power of a number?
- 137. What is a perfect power? An imperfect power?
- 138. What is the exponent of a power?
- 139. Give the principle involved in finding any power of a number.
- 140. Define evolution.
- 141. What is the root of a number?
- 142. How are the roots of numbers indicated?
- 143. Define square root. Cube root.
- 144. What is the difference between arithmetical progression and geometrical progression?

145. What five things are to be considered in arithmetical progression?

146. What things are to be considered in geometrical progression?

147. What is a duodecimal?

148. For what are duodecimals used?

149. What is mensuration?

150. What is magnitude?

151. What is the measuring unit of surfaces?

152. How do you find the area of a parallelogram, and a square?

153. How do you find the area of a rhombus?

154. How do you find the area of a trapezium?

155. How do you find the area of a triangle?

156. How do you find the area of a triangle when the three sides are given?

157. How do you find the circumference of a circle, when the diameter is given?

158. How do you find the diameter of a circle, when the circumference is given?

159. How do you find the area of a circle?

160. How do you find a mean proportional between two numbers?

161. How do you find the solidity of bodies whose sides are perpendicular to each other?

162. How do you find the solidity of a prism?

163. How do you find the lateral surface of a right prism?

164. How do you find the solidity of a pyramid or cone?

165. How do you find the lateral or convex surface of a regular pyramid, or cone?

166. How do you find the solidity of a cylinder?

167. How do you find the convex surface of a cylinder?

168. How do you find the surface of a sphere or globe?

169. How do you find the solidity of a sphere or globe?

170. How do you find the side of a square equal in area to any given surface?

ANSWERS TO QUESTIONS ON ARITHMETIC.

1. Arithmetic, as a *Science*, logically investigates and philosophically classifies and arranges the principles and rules of the subject; as an *Art*, it applies the principles and rules for computation to the practical affairs of life.

French's Common School, p. 5.

2. Arithmetic is founded on NOTATION, and its operations are carried on by means of ADDITION, SUBTRACTION, MULTIPLICATION and DIVISION.

Ray's Higher, p. 11, art. 23.

3. Arithmetical language is the method of expressing numbers. It is of two kinds, *Oral* and *Written*. The former is called *Numeration* and the latter is called *Notation*.

Brook's Normal, Part 2, p. 10, arts. 13-14.

4.

1. By *words*, or common language.

2. By *figures*, called the *Arabic Method*.

3. By *letters*, called the *Roman Method*.

Brook's Normal Union, Part 2, p. 11, art. 23.

5. We employ characters to represent the first nine numbers, and then use these characters to number the groups, the group numbered being indicated by the position of the character.

Id., p. 11, art. 25.

6. From the Latin, *decem*, ten. Ten units of a lower order make one unit of the next higher order.

Id., p. 16, art. 36.

7. The scale of a system of Notation is the law of relation between its successive orders of units. The number which expresses this law is called the *radix* of the scale.

Id., p. 17, art. 38.

8. Upon the simple but ingenious *device* of *place*.

Id., p. 17, art. 40.

9. By the following seven letters: I. *one*; V. *five*; X. *ten*; L. *fifty*; C. *one hundred*; M. *one thousand*. Everytime a letter is repeated its value is repeated. Where a letter of *less* value is placed *before* one of a *greater* value, the less is taken from the greater. If placed *after* it, the less is added to the greater.

Ray's Higher, p. 18, art. 38.

10. A bar (—) placed *over* a letter increases its value *a thousand times*. Thus $\overline{\text{M}}$ denotes one million.

Id., p. 19.

11. Addition. For by it we pass from unity to plurality; from the one to the many. This process, which gives rise to numbers, becomes the primary operation of Arithmetic.

Brook's Philosophy of Arith., p. 207.

12.

I. Only similar numbers can be added.

II. The sum is a number similar to the numbers added.

III. The sum is the same in whatever order the numbers are added.

Id., p. 208.

13. Two. The first consists in finding the sums of numbers independently of the notation used to express

them. The second consists in finding the sum of numbers as expressed in written characters. The former deals with small numbers which can be united mentally and may be called *mental addition*; the latter is used with large numbers, and may be called *written addition*.

Id., p. 208.

14. Merely for convenience.

Id., p. 211.

15. Subtraction.

Id., p. 213.

16.

I. Similar numbers only can be subtracted.

II. The difference is a number similar to the minuend and subtrahend.

III. If the minuend and subtrahend be equally increased or diminished, the remainder will be the same.

IV. The minuend equals the sum of the subtrahend and remainder; the subtrahend equals the difference between the minuend and remainder.

Id., pp. 214 and 215.

17. There are two. 1st. The finding of the difference between numbers independently of the notation employed to express them. 2d. The finding of the difference between large numbers expressed in the Arabic System.

Id., pp. 216-217.

18. Two. First, we may find the difference between two numbers by *counting off* from the large number as many units as are contained in the smaller number. The other method consists in deriving the elementary differences *by inference from the elementary sums*.

Id., p. 260.

19.

I. The multiplier is always an abstract number.

II. The product is always similar to the multiplicand.

III. The product of two numbers is the same, which ever is made the multiplier.

IV. If the multiplicand be multiplied by all the parts of the multiplier, the sum of all the partial products will be the true product.

V. The multiplicand equals the quotient of the product divided by the multiplier; the multiplier equals the quotient of the product divided by the multiplicand.

Id., pp. 222-223.

20. Because they *make* the product.

Ray's Higher, p. 27.

21. Division is the process of finding the Quotient of two numbers.

Brook's Philosophy of Arith., p. 228.

22. The *terms* of Division are the Dividend, Divisor, and Quotient.

Brook's Written Arith., p. 44, art. 46.

23. The Quotient depends on both Dividend and Divisor.

Quackenbos's Practical Arith., p. 63.

24. If one of these terms is fixed, a change in the other changes the Quotient. But if both are changed, these changes may neutralize each other, and the Quotient remain the same.

Id., p. 63, art. 103.

25.

1. Multiplying the Dividend or dividing the Divisor by any number multiplies the Quotient by that number.

2. Dividing the Dividend or multiplying the Divisor by any number divides the Quotient by that number.

3. Multiplying or dividing both Dividend and Divisor by the same number does not change the Quotient.

Brook's Philosophy of Arithmetic, p. 230.

26.

Ans. I. Several recent writers take the position that a concrete number may be divided by an abstract number, because in practice we thus divide a concrete number into equal parts. This is a subordination of science to practice, which is neither philosophical nor necessary. The practical case which they thus try to include in the theory of the subject, admits of a scientific and simple explanation, without any modification of the fundamental idea of division; and when thus explained it becomes apparent that the two terms are similar numbers.

The dividend and divisor are always similar numbers. The quotient is always an abstract number.

Brook's Philosophy of Arithmetic, pp. 228-229.

Ans. II. The quotient may be either abstract or concrete,—

(a.) It will be an abstract number, when the dividend and divisor are both abstract, or both concrete numbers. (Ex. 1 and 2.)

(b.) The quotient will be a concrete number, when the dividend is a concrete, and the divisor an abstract number. (Ex. 3.)

(c.) Either the divisor or the quotient, must always be an abstract number. (Ex. 1, 2 and 3.)

(d.) An abstract number can not be divided by a concrete number. (Ex. 4.)

(1.)

$$\begin{array}{r} 15 \text{ cents} \mid 3 \text{ cents.} \\ \hline 5 \end{array}$$

(2.)

$$\begin{array}{r} 15 \mid 3 \\ \hline 5 \end{array}$$

(3.)	(4.)
$\frac{15 \text{ cents} \mid 3.}{5 \text{ cents}}$	$\frac{15 \mid 3 \text{ cents.}}{\text{Impossible}}$

Writing in the places of numbers, words indicating the kind of numbers used, we have :

(1.)	(2.)
$\frac{\text{Concrete} \mid \text{Concrete.}}{\text{Abstract}}$	$\frac{\text{Abstract} \mid \text{Abstract.}}{\text{Abstract}}$
(3.)	(4.)
$\frac{\text{Concrete} \mid \text{Abstract.}}{\text{Concrete}}$	$\frac{\text{Abstract} \mid \text{Concrete.}}{\text{Impossible}}$

French's Arithmetic, pp. 54-55.

27. Numbers may be classified as follows :

- I. As *Even* and *Odd*.
- II. As *Prime* and *Composite*.
- III. As *Integral* and *Fractional*.
- IV. As *Abstract* and *Concrete*.
- V. As *Simple* and *Compound*.
- VI. As *Like* and *Unlike*.

Robinson's Progressive Practical Arith., pp. 84-85.

28. An Even number is one that can be divided by 2 without a remainder. An Odd number is one that can not be divided by 2 without a remainder.

Brook's Written Arith., p. 73.

A Prime number is one that has no factors, and therefore has no exact divisor.

A Composite number is one that may be divided, and always is the product of two or more factors.

Raub's Complete Arithmetic, p. 60.

An Integral number, or Integer, expresses whole things. Thus, 281 ; 78 boys.

A Fractional number, or Fraction, expresses equal

parts of a thing. Thus, half a dollar; three-fourths of an hour.

Robinson's Progressive Practical Arith., p. 85.

An Abstract number is one that is not used in connection with any specified thing.

A Concrete number is one that is used in connection with some specified thing.

Milne's Practical Arith., p. 157.

A Simple number is an abstract number, or a concrete number having but one denomination; as, *three*, *three* feet.

A Compound number consists of two or more concrete numbers having different denominations; as, *three* feet, *six* inches.

Quackenbos's Higher Arithmetic, p. 8.

Like or Similar numbers are those which have the same unit. Thus, three yards and five yards are similar numbers.

Unlike or Dissimilar numbers are those which do not have the same unit.

Thus, three yards and three books are dissimilar numbers.

Hagar's Common School Arith., p. 7.

29. The Factors of a number are the integers which being multiplied together will produce that number.

Id., p. 52.

30. A Prime Factor of a number is its prime divisor.

White's Complete Arithmetic, p. 34.

31. Factoring is the process of separating a number into its factors.

Milne's Practical Arithmetic, p. 78.

32. A Divisor or Measure of a number, is a number that will divide it without a remainder.

Ray's Higher Arithmetic, p. 56.

33. A Multiple of a number is the product obtained by taking it a certain number of times; 15 is a multiple of 5, being equal to 5 taken 3 times.

Id., p. 56.

A Multiple of a number is any number which it will exactly divide.

White's Complete Arithmetic, p. 41.

34. A Common Divisor of two or more numbers, is a number which will divide them without a remainder. Thus, 2 is a common divisor of 4, 6, 8, 12, 16.

A Common Multiple of two or more numbers, is a number which can be divided by each of them without a remainder. Thus, 12 is a common multiple of 2, 3, 4.

Thomson's Practical Arithmetic, pp. 95-97, arts. 92-99.

35. The Greatest Common Divisor of two or more numbers, is the greatest number which will divide them without a remainder. Thus, 6 is the greatest common divisor of 12, 18, and 24.

The Least Common Multiple of two or more numbers, is the least number which can be divided by each of them without a remainder. Thus, 12 is the least common multiple of 4 and 6, for it is the least number which can be exactly divided by them.

Id., pp. 95-98, arts. 93-101.

36. A Fraction is a number which expresses one or more of the equal parts into which a unit is divided.

Hagar's Common School Arithmetic, p. 73, art. 141.

37. The Unit of the Fraction is the unit, or whole thing, which is considered as divided into parts. Thus, the unit of the fraction of a dollar is one dollar.

A Fractional Unit is one of the equal parts of the unit of the fraction. Thus, one-half is the fractional unit of halves.

Id., p. 73, arts. 142-143.

38. A Common Fraction is one in which the numerator and the denominator are both expressed by figures.

Raub's Complete Arithmetic, p. 72, art. 70.

39. Fractions are divided with regard to their *value*, as compared with the unit, into Proper and Improper Fractions; with regard to their form, into Simple, Compound and Complex.

Brook's Philosophy of Arithmetic, p. 421.

40. A Proper Fraction is one whose numerator is less than its denominator; as, $\frac{3}{4}$.

An Improper Fraction is one whose numerator is equal to or greater than its denominator; as, 4-4, 5-4.

A Simple Fraction is one not united with another, and both of whose terms are integers; as, $\frac{3}{4}$.

A Compound Fraction is a fraction of a fraction; as, $\frac{3}{4}$ of 5-6.

A Complex Fraction is one having a fraction in one or both of its terms; as, $\frac{3}{4}$ of 6, $\frac{6-7}{8-9}$.

Raub's Complete Arith., p. 72, arts. 71, 72, 73, 74-75.

41. The terms of a fraction are the Numerator and Denominator. The number below the line is called the Denominator. It shows into how many equal parts the whole is divided, and gives name to the parts. The number above the line is called the Numerator. It shows how many of the equal parts denoted by the Denominator are taken.

Quackenbos's Higher Arith., p. 92.

42. It has been stated by some writers, and seems frequently to be the idea of pupils, that a fraction is not a number. This, however, is a mistake, as will appear from a slight consideration of the matter. Newton's definition of number provides for the fractional number when the object measured is a definite part of the meas-

ure ; it consequently appears that the fraction is a number, if we accept his definition as correct. The definition, "A Fraction is a number of equal parts of unity," also makes it clear that a fraction is a number. Again, if it is not a number, what kind of a quantity is it ; and why should it be treated in arithmetic, the science of numbers ?

Five inches is certainly a number ; hence its equivalent, *five-twelfths* of a foot, is also a number. Numbers are of two classes, *integers* and *fractions* ; and fractions are numbers, as much so as integers. The fractional number, it will be noticed, involves two ideas—first, the integral unit ; and second, the fractional unit. In an integer we have the idea of a number of units ; in the fraction we have, not only an idea of a number of units, but also the *relation* of the fractional unit to the integral unit.

Brook's Philosophy of Arith., p. 424.

43. A fraction is not a denominate number.

Id., p. 425.

44. A *Mixed Number* is an integer and a fraction united ; as, $5\frac{1}{2}$.

White's Complete Arithmetic, p. 45, art. 76.

45. The *Reciprocal* of a number is 1 divided by that number: thus, the reciprocal of 6 is $\frac{1}{6}$.

Raub's Complete Arithmetic, p. 72, art. 77.

46.

Outline of the Cases of Fractions.	{	1. Reduction.	{	1. Number to a Fraction.
				2. Fraction to a Number.
				3. To Higher Terms.
				4. To Lower Terms.
				5. Compound to Simple.
				6. Dissimilar to Similar.
	{	2. Addition.	{	1. The denominators alike.
				2. The denominators unlike.
	{	3. Subtraction.	{	1. Denominators alike.
				2. Denominators unlike.
	{	4. Multiplication.	{	1. Fraction by a number.
				2. Number by a fraction.
				3. Fraction by a fraction.
	{	5. Division.	{	1. Fraction by a Number.
				2. Number by a Fraction.
				3. Fraction by a Fraction.
	{	6. Relation.	{	1. Number to a Number.
				2. Fraction to a Number.
				3. Number to a Fraction.
				4. Fraction to a Fraction.

Brook's Philosophy of Arithmetic, p. 427.

47. There are two methods of developing the subject of common fractions, which may be distinguished as the *Inductive* and *Deductive* methods. By the Inductive method, we solve each case by analyses, and derive the rules, or methods of operation, from these analysis, by inference or induction. The method is called inductive, because it proceeds from the analysis of particular problems to a general method which applies to all problems of a given class. By the deductive method we first establish a few general principles by demonstration, and then derive the *rules*, or methods of operation, from these principles. The method is called deductive because it

proceeds from the general principle to the particular problem. We will illustrate the difference of these two methods by a problem in compound fractions. Take the question, "What is $\frac{2}{3}$ of 4-5?" The analysis is as follows: $\frac{1}{3}$ of 1-5 is one of the three equal parts into which 1-5 may be divided; if each 5th is divided into 3 equal parts, 5-5 or the unit will be divided into 5 times 3, or 15 equal parts, and each part will be 1-15; hence $\frac{1}{3}$ of 1-5 is 1-15, and $\frac{1}{3}$ of 4-5 is 4 times $\frac{1}{15}$, or $\frac{4}{15}$ and $\frac{2}{3}$ of 4-5 is 2 times $\frac{4}{15}$, or 8-15. Examining the analysis we see that we have multiplied the two denominators together and the two numerators together, from which we derive the rule for the reduction of compound fractions. By the deductive method we would reason as follows: By a principle previously demonstrated, $\frac{1}{3}$ of 4-5, which is the same as dividing 4-5 by 3, is $\frac{4}{15}$; and $\frac{2}{3}$ of 4-5 by another principle, is 8-15.

It will be noticed that the deductive method is much shorter than the inductive method, because while the former explains every point involved, the latter makes use of principles previously demonstrated.

Id., pp. 428-429-430.

48. A Continued Fraction is a fraction whose numerator is 1, and denominator an integer plus a fraction whose numerator is also 1 and denominator a similar fraction, and so on.

Thus, $\frac{1}{1\frac{1}{2}} = \frac{1}{1 + \frac{1}{2}}$
 $\quad \quad \quad + \frac{1}{2}$
 $\quad \quad \quad + \frac{1}{2}$, or thus, $\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5}$.

Id., p. 434, Chapter IV.

49. A Decimal Fraction is a fraction whose denominator is not expressed; but is understood to be such a power of ten as is indicated by the number of figures at the right of the separatrix.

Criticism. In consulting Ray's Higher Arithmetic I find this definition of a decimal fraction:

"A Decimal Fraction is one which derives its name from the Latin word *decem* meaning ten; and is so-called, because its denominator is always 1 with cyphers annexed; being either 10 or the product of several 10's."

This definition is worthless because it includes a large class of common fractions. Read Prof. Davies, in his University Arithmetic,—“A decimal fraction is one in which the unit is divided according to the scale of tens.”

Remark. The separatrix is the most important character used in decimals, and no pains should be spared to impress this on the minds of pupils.

Holbrook's Normal Methods, pp. 329-330.

50. A Decimal Fraction may be expressed in the form of a common fraction, or by means of the decimal scale.

When expressed by the scale it is distinguished from the general meaning of the term *decimal fraction* by calling it a *Decimal*. A *Decimal* may thus be defined as a *decimal fraction* expressed by the decimal method of notation. Thus, 5-10, 45-100, are decimal fractions, but not *decimals*; while .5, .45, are both *decimal fractions* and decimals.

Brook's Philosophy of Arithmetic, p. 455.

51. In the treatment of decimals, the first thing to be considered is the method of reading and writing them, or their Numeration and Notation.

Id., p. 457.

52.

1. To read a decimal, read it as though it were an integer, and add the name of the right hand order.

2. To write a decimal, write it as an integer, and so place the decimal point that the right hand figure shall stand in the order denoted by the name of the decimal.

White's Complete Arithmetic, p. 78, art. 118.

3. It is seen from the decimal scale, that the tens of any number of tenths, the hundreds of any number of hundredths, the thousands of any number of thousandths, etc., each falls in the order of units when the decimal is expressed decimally. Thus, 42 tenths, written decimally, is 4.2, the 4 (tens) falling in units' order; 1265 hundredths, written decimally, is 12.65, the 2 (hundreds) falling in units' order; and 425 thousandths, written decimally is .425 or 0.425, the 0 (thousands) falling in units' order. Hence, the following

Rule.—To write a decimal, begin at the left and write the term corresponding to the name of the decimal, in the order of units.

Henkle's Method of Writing Decimals, White's Complete Arithmetic, pp. 311 and 312, art. 476.

4. There are two methods of reading decimals, which may be expressed as follows:

(a.) Begin at the decimal point and read in succession the value of each term belonging to the decimal, or

(b.) Read the decimal as a whole number, and annex the name of the right hand decimal place.

Methods of writing decimals:

(a.) Fix the decimal point and write each term in its proper decimal place.

(b.) Write the numerator as an integer, and then place the decimal point so that the right-hand term shall express the denomination of the decimal.

(c.) Write the numerator as an integer, and then begin at the right and numerate backward, filling vacant

places with ciphers, until we reach the required denomination, and to the expression thus obtained, prefix the decimal point. Thus, to write 475 millionths, we first write 475; then beginning at the 5, we numerate toward the left, saying tenths, hundredths, thousandths, ten-thousandths (writing a cipher), hundred-thousandths (writing a cipher), millionths (writing a cipher), and then place the decimal point.

Brooks's Philosophy of Arithmetic, pp. 458 and 459, Section II, Chapter I.

53. The denominator of a decimal will always be the unit 1, with as many ciphers annexed as are equal to the number of figures in the decimal or numerator.

Robinson's Progressive Practical Arith., p. 118.

54. The value of any decimal figure depends upon its place from the decimal point. Thus .3 is ten times .03.

Id., p. 119.

55. Decimals increase from right to left, and decrease from left to right, in a tenfold ratio; and therefore may be added, subtracted, multiplied, and divided the same as whole numbers.

Id., p. 119.

56. A Pure Decimal consists of a decimal only. Thus, .35, which is read 35 hundredths, is a pure decimal.

Hagar's Common School Arith., p. 103.

57. A Mixed Decimal consists of an integer and a decimal. Thus, 15.7, which is read 15 ones and 7 tenths or 15 and 7 tenths, is a mixed decimal.

Id., p. 103.

58. A Complex Decimal consists of a decimal with a common fraction annexed. Thus, .005 $\frac{3}{4}$, which is read 5 $\frac{3}{4}$ thousandths, is a complex decimal.

Id., p. 103, art. 227.

59. The Names of the decimal orders are derived from the names of the orders of integers.

Id., p. 103, art. 228.

60. A decimal in which one or more figures are constantly repeated, is called a *Circulating Decimal*.

Quackenbos's Practical Arith., p. 114, art. 194.

61. A Denominate Number is a concrete number in which the unit of measure is established by law or custom.

Thus, 5 yards, 3 feet, 7 pounds, 3 ounces, are denominate numbers.

Milne's Practical Arith., p. 157, art. 234.

62. A Simple Denominate Number is a denominate number composed of units of the same denominations.

Thus, 5 feet, 9 pounds, 3 miles, are simple denominate numbers.

Id., p. 157, art. 235.

63. A Compound Denominate Number is a denominate number composed of units of two or more denominations which are related to each other. Thus, 6 feet and 4 inches, 8 hours and 32 minutes, are compound denominate numbers.

Id., p. 157, art. 236.

64. A Standard Unit is a unit of measure from which the other units of the same kind may be derived.

Id., p. 157, art. 237.

65.

1. Value; 2. Weight; 3. Length; 4. Surface; 5. Volume; 6. Capacity; 7. Angles; 8. Time.

Philosophy of Arithmetic, Brooks, p. 492.

66. Money is the measure of the value of things. It is of two kinds, coins and paper money. In the U. S. the standard unit is the dollar. In English money the standard unit is the pound.

Brook's Written Arith., pp. 137-138.

67. The standard unit of weight is the Troy Pound.

Brook's Philosophy of Arith., p. 494.

68. The standard unit of length is the Yard. It is determined by the length of a pendulum which vibrates seconds in a vacuum at the level of the sea, in the latitude of London.

Id., p. 494.

69. The standard unit of surface is the Square yard for ordinary measurement, and the Acre for land.

Id., p. 494.

70. The standard unit of volume is the Cubic yard for ordinary measurement, and the Cord for wood.

Id., p. 494.

71. The standard unit of capacity is the Gallon for fluids, and the Bushel for dry substances.

Id., p. 494.

72. The standard unit of angular measure is the Right angle, or, in practice, one degree of a circle.

Id., p. 494.

73. The standard unit of time is the Day. This is determined by the revolution of the earth upon its axis.

Id., p. 494.

74. The Metric System is a decimal system of weights and measures, having the meter for the base or unit.

Raub's Complete Arith., p. 315.

75. Percentage is the name applied to computations in which 100 is the unit or measure.

Id., p. 184, art. 153.

76. The Rate is the number of hundredths. The rate per cent. is the fraction which denotes how many hundredths are taken. Thus, in 3%, or $\frac{3}{100}$, 3 is the rate, and $\frac{3}{100}$ itself the rate per cent.

Id., p. 185.

77. Problems in Percentage involve the following elements:

1. The Base is the number of which the per cent. is taken.
2. The Rate is the number of hundredths taken.
3. The Percentage is the number which is a certain number of hundredths of the base.
4. The Amount is the sum of the base and percentage.
5. The Difference is the base less the percentage.

Milne's Practical Arith., p. 209.

78. Any per cent., being so many hundredths, may be operated with either as a common fraction or a decimal; but the decimal form is preferred as the easier. 1% is either 1-100 or .01. Any part of 1% may be expressed decimally by taking the like part of .01. Thus, $\frac{1}{4}\% = \frac{1}{4}$ of .01 = .0025. Any part of 1% that can not be exactly expressed as a decimal may be written as a common fraction on the right of the order of hundredths. Thus, $\frac{1}{3}\% = .00\frac{1}{3}$. The following examples will show how to express different rates per cent. decimally:—
 $2\% = .02$. $100\% = 1.00$. $\frac{1}{2}\% = .005$. $7\frac{3}{10}\% = .073$.

Quackenbos's Higher Arith., p. 234.

79.

- I. Base and rate given, to find the percentage.
Multiply the base by the rate.
- II. Base and percentage given, to find the rate.
Divide the percentage by the base.
- III. Rate and percentage given, to find the base.
Divide the percentage by the rate.
- IV. Base and rate given, to find either amount or difference.

Multiply the base by 1 plus the rate, for the amount; and by 1 minus the rate, for the difference.

V. Amount or difference and rate given, to find the base.

Divide the amount by 1 plus the rate; and the difference by 1 minus the rate.

French's Common School Arith., pp. 235-236.

80. The rules of Percentage are applied in many of the most common mercantile transactions,—in computing Interest, Discount, Commission, Taxes, Insurance, Duties, and especially Profit and Loss.

Quackenbos's Higher Arith., p. 242, art. 424.

81. Profit and Loss are the terms used to indicate gain or loss in business transactions.

Raub's Complete Arith., p. 195.

82. Commission is an allowance made to an agent for selling goods for another.

The commission allowed to a broker is called brokerage.

Id., pp. 201-202, arts. 163-169.

83. An Agent is one who transacts business for another. A Factor is an agent who buys and sells or transacts mercantile business for another. A Broker is one who buys and sells stocks, real estate, bonds and the like for another person. A Consignee is the person to whom goods are sent for sale; the sender is called the Consignor.

Id., pp. 201-202, arts. 164, 165, 167, 168.

84. Duties, or Customs, are taxes levied on imported goods, for the support of government and the protection of home industry.

Robinson's Progressive Practical Arith., p. 237, art. 290.

85. Specific Duties are customs assessed on the quantity of goods imported, without reference to their value, and *ad valorem* duties are customs assessed on the

cost of goods in the country from which they are imported.

White's Complete Arith., p. 168, arts. 268-269.

86. A list of the rates of duties to be collected, is called a Tariff.

Id., p. 168, art. 267.

87. Insurance is a guaranteed indemnity for loss.

Id., p. 159, art. 249.

88. There are five different kinds of Insurance:

Fire Insurance secures against loss or damage by fire; Marine Insurance, against the dangers of navigation; Accident Insurance, against casualties to travellers and others; Health Insurance secures a weekly allowance during sickness; Life Insurance secures a certain sum, on the death of the insured, to some party named in the contract.

Quackenbos's Practical Arith., pp. 256-257.

89. The Underwriter is the insurer,—the person or company that takes the risk. The Policy is the written contract. The Premium is the sum paid the underwriter for taking the risk.

Id., p. 257, art. 411.

90. A Tax is a sum assessed on the person, property, or income of an individual, for any public purpose, such as the support of government, the maintenance of schools, etc.

Quackenbos's Higher Arith., p. 312, art. 526.

91. The interest bearing notes issued by nations, states, cities, railroad companies, and other corporations, as a means of borrowing money, are called Bonds. The Coupons attached to bonds are due-bills for the interest, which as the interest becomes due, are cut off and presented for payment.

The several classes of bonds issued by the United States Government, are called United States Securities, or Government Securities, the principal of which are known as Sixes of 1881, Five-Twenties, and Ten-Forties.

White's Complete Arith., p. 204, arts. 330-331.

92. Interest is the premium paid for the use of money
Id., p. 171, art. 278.

93. Simple Interest is interest on the principal only. Compound Interest is interest on the principal and also on the interest which, at regular intervals of time, is added to the principal.

Id., pp. 172-208, arts. 283-336.

94. A Note, or a Promissory Note, is a written promise to pay a certain sum of money for value received.

Hagar's Common School Arith., p. 202, art. 485.

95. A Time Note is one made payable at a specified time. A Negotiable Note is one so made that it can be sold or transferred.

Hagar's Common School Arith., p. 202.

A Bank-Note is a note payable at a bank. Bank bills are also called bank notes.

French's Common School Arith., p. 271.

A Joint Note is a note signed by two or more persons who are jointly liable for its payment. A Joint and Several Note is a note signed by two or more persons who are both jointly and singly liable for its payment.

White's Complete Arith., p. 199.

96. A Draft is an order made by one person upon another to pay a specified sum to a third person named. It is also called a Bill of Exchange.

White's Complete Arith., p. 201, art. 326.

97. Discount is a sum deducted for the payment, before it becomes due, of a note or other debt not drawing interest.

Present Worth, or Proceeds, is the face of an obligation minus the discount.

French's Common School Arith., pp. 265-266, arts. 470-472.

98. True Discount is the difference between the present worth and the face of the debt. In other words, it is the interest on the present worth for the given time. Bank Discount is greater than true discount,—the former being computed on the face of the note or amount, the latter on the present worth or principal.

Quackenbos's Practical Arith., pp. 234 237.

99. Ratio is the relation that one quantity bears to another of the same kind. It is represented by the quotient arising from dividing one by the other. The ratio of 8 to 2 is 4.

Id., p. 274, art. 444.

100. The two numbers compared are called the Terms of the ratio.

White's Complete Arith., p. 222, art. 353.

101. The ratio of two numbers is expressed by placing a colon (:) between them; as 5:12.

A ratio is also expressed in the form of a fraction, the antecedent being made the numerator and the consequent the denominator. Thus, $5:12 = \frac{5}{12}$.

Id., p. 222, arts. 355-356.

102. A Simple Ratio is the ratio of two numbers; as 5:8, or $\frac{5}{8}$: $\frac{4}{5}$. A Compound Ratio is the product of two or more simple ratios; as, $(5:6) + (\frac{3}{5}:10)$.

Id., pp. 222-223.

103. Proportion is an expression of equal ratios.

Ray's Higher Arith., p. 191, art. 246.

104. Placing a double colon (: :) between them, forms the proportion 3:5::6:10, read 3 is to 5 as 6 is to 10, or

the ratio of 3 to 5 is equal to the ratio of 6 to 10.

Id., p. 191, art. 246.

105. A proportion with more than two equal ratios is called a continued proportion, as $3 : 5 :: 6 : 10 :: 9 : 15$.

Id., p. 191, art. 246.

106. Since each ratio has an antecedent and consequent, every proportion has two antecedents and two consequents, the 1st and 3d terms being the antecedents, and the 2d and 4th the consequents.

Id., p. 191, art. 246.

107. Ratio is the relation between two numbers shown by their quotient; proportion is the relation between two ratios shown by their equality. The former has two terms, the latter four.

Id., p. 191.

108. A Simple Proportion is an equality between two simple ratios.

Milne's Practical Arith., p. 308.

109. A Direct Proportion is one in which each term increases or diminishes, as the one on which it depends increases or diminishes.

Id., p. 308, art. 492.

110. An Inverse Proportion is one in which each term increases as the term upon which it depends diminishes, or diminishes as it increases.

Id., p. 309, art. 493.

111. A Compound Proportion is a proportion in which either ratio is compound.

Id., p. 311, art. 496.

112. A Partnership is the association of two or more individuals for the transaction of business; the persons so associated are called partners.

Raub's Complete Arith., p. 264.

113. A Simple Partnership is one in which each of the partners has his capital invested for the same time. A Compound Partnership is that in which the capital of the partners is employed for different periods of time.

Id., pp. 265-266.

114. Analysis, in Arithmetic, is the process of arriving at a required result, not by formal rules, but by tracing out relations and reasoning from what is known to what is unknown. We generally reason from the given number to 1, and from 1 to the required number.

Quackenbos's Practical Arith., p. 281, art. 463.

115. Exchange is a method of remitting money from one place to another, or of making payments by written orders.

Robinson's Progressive Practical Arith., p. 266, art. 338.

116. A Bill of Exchange is a written request or order upon one person to pay a certain sum to another person, or to his order, at a specified time.

Id., p. 266, art. 339.

117. There are always three parties, and usually four, to a transaction in exchange.

Id., p. 266, art. 340.

118. The Drawer or Maker is the person who signs the order or bill. The Drawee is the person to whom the order is addressed. The Payee is the person to whom the money is ordered to be paid. The Buyer or Remitter is the person who purchases the bill.

Id., pp. 266-267, arts. 341-342-343-344.

119. The Indorsement of a bill is the writing upon its back, by which the payee relinquishes his title, and transfers the payment to another.

Id., p. 267, art. 345.

120. The Acceptance of a bill is the promise which

the drawee makes when the bill is presented to him to pay it at maturity.

Id., p. 267, art. 346.

121. This obligation is usually acknowledged by writing the word "Accepted," with his signature across the face of the bill.

Id., p. 267, art. 346.

122. A Bankrupt is a person who fails in business and has not property enough to pay all his debts.

White's Complete Arith., p. 170, art. 272.

123. The term bankrupt is strictly applicable only to a trader, while the term insolvent applies to any person who is unable to pay his debts.

Id., p. 170, art. 272.

124. Bankruptcy is a failure in business, with inability to pay all debts.

Id., p. 170, art. 273.

125. Aliquot parts is a useful method of finding a product, when one or both of the factors is a compound number.

Ray's Higher Arith., p. 181, art. 233.

126. Every circle is supposed to be divided into 360 equal parts, called degrees. Since the sun appears to pass from east to west round the earth, or through 360° , once in every 24 hours, it will pass through $\frac{1}{24}$ of 360° , or 15° of the distance, in 1 hour; and $1'$ of distance in $\frac{1}{15}$ of 1 hour, or 4 minutes; and $1''$ of distance in $\frac{1}{60}$ of 4 minutes, or 4 seconds.

Robinson's Progressive Practical Arith., p. 195.

127. Divide the difference in longitude, expressed in degrees, minutes and seconds, by 15, and the respective quotients will be hours, minutes, and seconds of time.

White's Complete Arith., p. 134, art. 201.

128. Multiply the difference in time, expressed in

hours, minutes, and seconds, by 15, and the respective products will be degrees, minutes, and seconds of longitude.

Id., p. 134, art. 201.

129. When the second place is East of the first, add their difference of time ; when it is West of the first, subtract their difference of time.

Id., p. 134, art. 201.

130. Taking with them a chronometer (an accurate watch) set to mark the time at a given place (as Greenwich or Washington), they ascertain by observation of the sun with the sextant the time at the spot they are in, reduce the difference of time to difference of longitude, and thus find that they are so many degrees east or west of the meridian of the place for which their chronometer is set.

Quackenbos's Higher Arith., p. 225.

131. Alligation treats of the mixing or combining of two or more articles of different values.

Raub's Complete Arith., p. 269, art. 289.

132. Alligation Medial is the process of finding the average value or quality of the several articles. Alligation Alternate is the process of determining the proportion of the several articles used in forming a mixture.

Id., p. 269, arts. 290-291.

133. An Annuity is a sum of money which is payable at regular periods of time.

The New American Practical Arith., p. 280.

134. A Certain Annuity is one that continues for a fixed period of time. A Perpetual Annuity, or Perpetuity, is one that continues forever. A Contingent Annuity is one that begins or ends, or begins and ends, on the occurrence of certain specified future events, as on the death of one or more persons. An Annuity in Re-

version is one that begins at a specified future time, or on the occurrence of a specified future event. An Annuity in Arrears, or Forborne, is one the payments of which have been allowed to accumulate, instead of being paid when due.

Id., p. 280.

135. Involution is the process of finding a power of a number.

Hagar's Common School Arith., p. 262.

136. A Power of a number is the result obtained by using it a certain number of times as a factor.

Id., p. 262, art. 653.

137. Any number that is the product of equal factors is called a Perfect Power. Any number that is not the product of equal factors is called an Imperfect Power.

Id., p. 262, art. 656.

Answer 2d. A Perfect Power is a number whose root can be found. An Imperfect Power is a number whose root can not be found exactly.

Milne's Practical Arith., pp. 319-320, arts. 513-514.

138. The Exponent of a power is a number placed at the right of the root and just above it, to show the number of times the root is to be used as a factor. It also denotes the degree of the power. Thus, 2^2 denotes the second power of 2, or 2×2 ; $2^3 = 2 \times 2 \times 2$, or the third power of 2.

The New American Practical Arith., p. 207.

139. Any power of 1 is 1; any power of a number greater than 1 is greater than the number itself; any power of a number less than 1, is less than the number itself.

Ray's Higher Arith., p. 331, art. 381.

140. Evolution is the process of finding the roots of numbers.

Common School Arith., Hagar, p. 264, art. 665.

141. The Root of a number is one of the equal factors of that number.

Id., p. 264, art. 661.

142. The roots of numbers are indicated by the character, $\sqrt{}$, called the Radical Sign. If no figure is written in the opening of the sign, the square root is indicated; if the figure 3 is placed there, as $\sqrt[3]{}$, the cube root; if 4, the fourth root; and so on.

Id., p. 264, art. 663.

143. The Square Root of a number is one of the two equal factors of that number. The Cube Root of a number is one of the three equal factors of that number.

Written Arith., Brooks, p. 269, arts. 420-421.

144. An Arithmetical Progression is a series of terms varying by a common difference. A Geometrical Progression is a series of terms varying by a common multiplier.

Id., pp. 258-261, arts. 387-395.

145. In Arithmetical Progression, five things are to be considered: The First Term, the Last Term, the Number of Terms, the Common Difference, and the Sum of the Series. Three of these being given, the other two can be found.

Quackenbos's Higher Arith., p. 393, art. 667.

146. In Geometrical Progression, five things are to be considered: the First Term, the Last Term, the Number of Terms, the Constant Multiplier, and the Sum of the Series. Three of these being given, the other two can be found.

Id., p. 396.

147. A Duodecimal is a denominate number in which

twelve units of any denomination make a unit of the next higher denomination.

White's Complete Arith., p. 306, art. 462.

148. Duodecimals are used by artificers in measuring surfaces and solids.

Id., p. 306, art. 463.

149. Mensuration is the art of measuring magnitudes.

Thomson's Practical Arith., p. 338.

150. The term magnitude denotes that which has one or more of the three dimensions, length, breadth, and thickness.

Id., p. 338.

151. In measuring surfaces, it is customary to assume a square as the measuring unit, as a square inch, a square foot, a square rod, etc.; that is, a square whose side is a linear unit of the same name.

Id., p. 338, art. 381.

152. By multiplying the length by the breadth.

Id., p. 338.

153. By multiplying the length by the altitude.

Id., p. 338.

154. By multiplying half the sum of the parallel sides by the altitude.

Id., p. 338.

155. By multiplying the base by half the altitude.

Id., p. 339.

156. From half the sum of the three sides subtract each side respectively; then multiply together half the sum and the three remainders, and extract the square root of the product.

Id., p. 339, art. 386.

157. By multiplying the given diameter by 3. 14159.

Id., p. 339, art. 387.

158. By dividing the given circumference by 3.14-
159.

Id., p. 339, art. 388.

159. By multiplying half the circumference by half the diameter; or, by multiplying the circumference by a fourth of the diameter.

Id., p. 339.

160. A mean proportional between two numbers is found by multiplying the given numbers together, and extracting the square root of the product.

Id., p. 340, art. 391.

161. By multiplying the length, breadth, and thickness together.

Id., p. 340.

162. By multiplying the area of the base by the height.

Id., p. 341, art. 394.

163. By multiplying the length by the perimeter of the base.

Id., p. 341, art. 395.

164. By multiplying the area of the base by $\frac{1}{3}$ of the altitude.

Id., p. 341, art. 396.

165. By multiplying the perimeter of the base by $\frac{1}{2}$ the slant height.

Id., p. 341.

166. By multiplying the area of the base by the height or length.

Id., p. 342, art. 400.

167. By multiplying the circumference of the base by the height.

Id., p. 342, art. 401.

168. By multiplying the circumference by the diameter.

Id., p. 342.

169. By multiplying the surface by $\frac{1}{6}$ of the diameter.

Id., p. 343, art. 403.

170. By extracting the square root of the given surface.

Id., p. 340, art. 390.

QUESTIONS ON GRAMMAR.

1. Define Grammar as an art, as an acquisition, as a study.
2. What is English Grammar ?
3. What is the object of studying Grammar ?
4. What is language, strictly speaking ?
5. What can you say of the composition of language ?
6. Under what heads is English Grammar treated of ?
7. Define Etymology .
8. How are words classified ?
9. How are words distinguished ?
10. By what general name are the different classes of words called ?
11. Why are they called parts of speech ?
12. Give a simple and yet logical definition of a noun.
13. Give a complete classification of the noun.
14. Define and illustrate the classes of the common noun.
15. What may be used as nouns ? Illustrate.
16. What is personification ? Illustrate.
17. Give a rule for determining what nouns should be considered masculine and what feminine.
18. When and how are nouns made plural ?

19. What can you say of the gender of collective nouns ?
20. How are most nouns made plural ?
21. Mention some nouns that are used only in the plural number ; some that are used in the singular number only ; and some that have the same form for either number.
22. How are most compound words made plural ?
23. How is a name that begins with the title Mr., Miss, or Dr. made plural ?
24. What is said of the title Mrs. ?
25. How are letters, figures, marks and signs made plural ?
26. Define case.
27. Give an outline of case.
28. Give rules for forming the possessive.
29. What exception to these rules ?
30. What is the origin of the use of the possessive sign('s) ?
31. What is enallage as used in grammar ?
32. What is a pronoun ?
33. What does the word pronoun mean ?
34. For what is a pronoun used ?
35. Into how many general classes may pronouns be divided ?
36. Define a personal pronoun.
37. Into what classes are the personal pronouns divided ?
38. Name the simple personal pronouns.
39. Name the compound personal pronouns.
40. To which of the pronouns is it customary to apply gender ?
41. Why are not the first and second persons each made always to represent a different gender ?
42. What is a relative pronoun ?

43. What classes have relative pronouns ?
44. Name the simple relative pronouns.
45. Is *As* ever used as a relative pronoun ?
46. How are *Who*, *Which* and *That* used ?
47. What can you say of the declension of relative pronouns ?
48. When is *Which* preferred to *That* ?
49. When is *That* preferred to *Which* ?
50. Give the peculiar constructions of the relative pronoun *What* .
51. When is *What* used ?
52. What pronoun is used when the antecedent is supplied ?
53. Give a general rule for parsing the relative pronoun *What* .
54. How are compound Relatives formed ?
55. Name the compound relatives.
56. Define an interrogative pronoun.
57. What is the antecedent of a pronoun ?
58. What may the antecedent of a pronoun be ?
59. What is the subsequent of a pronoun ?
60. What is the difference between the antecedent and the subsequent ?
61. What are the modifications of pronouns ?
62. Define an adjective.
63. Into how many classes may adjectives be divided ?
64. What is a descriptive adjective ?
65. What is a definitive adjective ?
66. Into what other classes may adjectives be divided ?
67. Define a common adjective.
68. Define a proper adjective.
69. Define a participial adjective.

70. Define a compound adjective.
71. Define a numeral adjective.
72. Name and define the classes into which numeral adjectives are divided.
73. Define these classes of adjectives.
74. Define a pronominal adjective.
75. What modifications have adjectives?
76. To what adjectives is number applied?
77. What is the comparison of an adjective?
78. Why is this called comparison?
79. How many and what are the degrees of comparison?
80. Define the diminutive degree and tell how it is formed.
81. Define the positive degree.
82. Define the comparative degree and tell how it is formed.
83. Define the superlative degree and tell how it is formed.
84. What is comparison ascending?
85. What is descending comparison?
86. What is regular comparison?
87. Give examples of irregular comparison.
88. When are adjectives redundant?
89. Are all adjectives compared?
90. When monosyllabic and polysyllabic adjectives come together which are placed first and how are they compared?
91. What is an article?
92. What other name is applied to this part of speech?
93. Which is the definite article and why so called?
94. Which is the indefinite article and why so called?

95. When should A be used ?
96. When should An be used ?
97. When is no article used ?
98. Define a verb.
99. How are verbs classified ?
100. Define a regular verb.
101. Define an irregular verb.
102. Define a defective verb.
103. Name the defective verbs.
104. Define a redundant verb.
105. Give examples of redundant verbs.
106. Define an impersonal verb.
107. Define an auxiliary verb.
108. Why are the auxiliary verbs so called ?
109. Name the auxiliary verbs.
110. Define a principal verb.
111. What is a complete verb ?
112. Define a transitive verb.
113. Define an intransitive verb.
114. What is an active-transitive verb ?
115. What is an active-intransitive verb ?
116. What further can be said in reference to active-transitive and active-intransitive verbs ?
117. What stands as an answer to What ? or Whom ? of a transitive verb ?
118. How would you determine whether a verb is transitive or intransitive ?
119. How many terms implied in a transitive verb ?
120. How many terms implied in an intransitive verb ?
121. May some verbs be used transitively or intransitively ? Give examples.
122. What is a copulative verb ?
123. What is the principal copula verb ?

124. What is the peculiarity of these copula verbs ?
125. How do derivative verbs form their principal parts ?
126. What properties have verbs ?
127. Define voice.
128. Define the active voice.
129. Define the passive voice.
130. What else can be said of **voice** ?
131. Define Mode.
132. Name the classes of modes.
133. What are the finite modes ?
134. Name the finite modes.
135. Define the indicative mode.
136. Define the subjunctive mode.
137. What is the difference between the **indicative** and subjunctive moods ?
138. What is the explanation of these differences ?
139. What are the signs of the subjunctive mood ?
140. Define the imperative mood.
141. What is always the subject of the **imperative** mood ?
142. Define the potential mode.
143. Why is the potential mode so called ?
144. What are the infinite modes ?
145. Name the infinite modes.
146. Define the infinitive mood.
147. The infinitive is usually accompanied by **what** word ?
148. After what words is the sign omitted ?
149. How many infinitives are there ?
150. What does the present infinitive denote ?
151. Of what does the present infinitive consist ?
152. What does the perfect infinitive represent ?
153. Of what does the perfect infinitive consist ?

154. What constructions have infinitives ?
155. What is a participle ?
156. How is the participle formed ?
157. How many participles are there ?
158. What is a simple participle ?
159. What is a compound participle ?
160. What constructions have participles ?
161. Define tense.
162. How many and what are the tenses ?
163. Define the present tense.
164. Define the past tense.
165. Define the future tense.
166. Define the present—perfect tense.
167. Define the past—perfect tense.
168. Define the future—perfect tense.
169. By what other names are the tenses designated ?
170. How many tenses has the indicative mood ?
171. How many tenses has the subjunctive mood ?
172. How many tenses has the potential mood ?
173. How many tenses has the infinitive mood ?
174. How many tenses has the imperative mood ?
175. What are the forms of the verb ?
176. How many forms have transitive verbs ?
177. Name these forms.
178. How many forms have intransitive verbs ?
179. Name the forms of the intransitive verbs.
180. Define the common form ?
181. Give examples of the common form.
182. Define the emphatic form.
183. Give examples of the emphatic form.
184. In what other way is the emphatic form used ?
185. Give examples.
186. Define the progressive form.

187. Give examples of the progressive form.
188. When is the progressive form used?
189. How is it formed?
190. Define the passive form.
191. Where is the passive form used?
192. How is it formed?
193. Define the ancient form.
194. What other forms are recognized by some grammarians?
195. How is the interrogative form made?
196. How is the interrogative form made in the present and past tenses?
197. How is the negative form made?
198. From what do the compound forms result?
199. What persons and numbers have verbs?
200. What is conjugation?
201. What is synopsis?
202. What is the inflection of a verb?
203. How many conjugations have verbs?
204. What verbs are of the weak conjugation?
205. What verbs are of the strong conjugation?
206. What is the theme of the verb?
207. What is a paradigm?
208. What is it to make a verb?
209. What is it to tell where a verb is made?
210. Give an example.
211. What is the root of the verb?
212. What are the principal parts of a verb?
213. Why are they so called?
214. Define an adverb.
215. How are adverbs classified?
216. What is a modifying adverb?
217. What is a conjunctive adverb?
218. To what is an adverb equivalent?

219. From what are adverbs derived ?
220. What general rule can be given in reference to the position of the adverb ?
221. What modifications have adverbs ?
222. Define a preposition.
223. Into how many classes are prepositions divided ?
224. Define a simple preposition.
225. Define a compound preposition.
226. Define a complex preposition.
227. Define a conjunction.
228. How are conjunctions classified ?
229. How are conjunctions classified as to rank ?
230. What are co-ordinate connectives ?
231. What are subordinate connections ?
232. How are conjunctions classified as to signification ?
233. Define a copulative conjunction.
234. Define a disjunctive conjunction.
235. Define an interjection.
236. Define syntax.
237. Define a sentence.
238. What does the expression of a thought involve ?
239. What is the subject of a sentence ?
240. What is the predicate of a sentence ?
241. How are sentences classified ?
242. Name the sentences of the first division.
243. Define a simple sentence.
244. Define a complex sentence.
245. Define a compound sentence.
246. Define a complete sentence.
247. Define an abridged sentence.
248. How are sentences classified as to the nature of the proposition ?

249. Define a declarative sentence.
250. Define an interrogative sentence.
251. Define an imperative sentence.
252. Define an exclamatory sentence.
253. What are the elements of a sentence ?
254. Into what can all sentences be resolved ?
255. What is a proposition ?
256. How many parts has every proposition ?
257. Define a clause.
258. How is a clause always used ?
259. Define a phrase.
260. What is a modifier ?
261. What is analysis ?
262. Define synthesis.
263. Define ellipsis.
264. What is parsing ?
265. What is prosody ?
266. What is verse ?
267. How is poetry distinguished from prose ?
268. How many kinds of verse are there ?
269. Define rhyme.
270. Define blank verse.
271. What is meant by the quantity of a syllable ?
272. What is a foot ?
273. What is a figure ?
274. Name the figures of grammar.
275. What is a figure of orthography ?
276. What is a figure of etymology ?
277. What is a figure of syntax ?
278. What is a figure of rhetoric ?

ANSWERS TO QUESTIONS ON GRAMMAR.

1. Grammar, as an art, is the power of reading, writing, and speaking correctly. As an acquisition, it is the essential skill of scholarship. As a study, it is the practical science which teaches the right use of language.

Goold Brown's Grammar of Grammars, p. 145.

2. English Grammar is the art of speaking and writing the English language, according to established usage.

Pinneo's Analytical Grammar, p. 7, art. 1.

3. The object of studying grammar is to be able to understand, speak, and write a language correctly.

Hart's English Grammar and Analysis, p. 9.

4. Language is any method of communicating thought or feeling.

Holbrook's Complete English Grammar, p. 4, art. 6.

5. The composition of language is of two kinds, prose and verse.

Brown's Grammar of Grammars, p. 146.

6. English Grammar is treated of under four heads: Orthography, Etymology, Syntax, and Prosody.

Pinneo's Analytical Grammar, p. 7, art. 3.

7. Etymology treats of

1st. The Classification of words.

- 2d. The Properties of words.
- 3d. The Derivation of words.

Id., p. 8, art. 10.

- 8. In a Discourse, words are (classified) used—
 - 1. As Names of beings, places, or things;
 - 2. As Substitutes for names or facts;
 - 3. As Qualifiers or Limiters of names;
 - 4. To assert action, being, or condition;
 - 5. To modify an assertion or a quality;
 - 6. To express relations of things or of thoughts;
 - 7. To introduce or to connect words and sentences;
 - 8. To express a sudden or an intense emotion,
- or,
- 9. For Rhetorical effect.

Clark's Normal Grammar, p. 17.

- 9. By their uses—

Words are distinguished as,

- | | |
|----------------------|----------------------|
| 1. Nouns, | 5. Adverbs, |
| 2. Pronouns, | 6. Prepositions, |
| 3. Adjectives, | 7. Conjunctions, |
| 4. Verbs, | 8. Exclamations, and |
| 9. Words of Euphony. | |

Id., p. 17.

- 10. The several kinds, or classes of words, are called by the general name of Parts of Speech.

Pinneo's Analytical Grammar, p. 8, art. 11.

- 11. The word parts means division, and speech means language, so that the expression, parts of speech, means division of language.

Id., p. 9, art. 12.

- 12. A Noun is a name-word.

Swinton's Language Primer, p. 8.

13.

Nouns.	{ Proper. Common;	{	Gender.	{ Masculine, Feminine, Common, Neuter.
			Person.	{ First, Second, Third.
			Number.	{ Singular, Plural.
			Case.	{ Nominative, Possessive, Objective, Independent.
			including Collective, Abstract, Verbal, Diminutive, Class.	{ Properties or Modifications.

14. A collective noun is a name, singular in form, but plural in meaning; as, crowd, company, fleet.

Holbrook, p. 31, art. 32.

An abstract noun is the name of a quality considered apart from the substance to which it belongs; as, sweetness, beauty. Abstract nouns are derived from adjectives.

Hart, p. 26.

A verbal noun is the name of an action or state of being; as, singing, standing, seeing.

Harvey, p. 26, art. 8.

A diminutive noun is one derived from another noun, and expressing some object of the same kind but smaller; as, stream, streamlet; hill, hillock.

Hart, p. 26.

Class nouns are names which can be applied to each individual of a class or group of objects; as, horse, apple, man.

Harvey, p. 25.

15. All words, signs, phrases, and sentences taken technically (that is, independently of their meaning, and merely as things spoken of), are nouns; or, rath-

er, are things read and construed as nouns; because, in such a use, they temporarily assume the syntax of nouns. Adjectives made nouns: "The *Ancient* of Days did sit."—*Bible*. Pronouns made nouns: "The nameless He, whose nod is Nature's birth."—*Young*.

Verbs made nouns: "Avaunt all altitude, and stare, and start theatric."—*Cowper*.

Participles made nouns: "For the *crying* of the poor and the *sighing* of the needy, I will arise."—*Bible*.

Adverbs made nouns: "In these cases we examine the *why*, the *what*, and the *how* of things."—*L'Estrange*.

Conjunctions made nouns: "Your *if* is the only peace-maker; much virtue is in your *if*."—*Shak*.

Prepositions made nouns: "O, not like me; for mine's beyond, *beyond*."—*Shak*.

Interjections made nouns: "With *hark* and *whoop* and wild *halloo*."—*Scott*.

Brown's Gram. of Gram., pp. 238-239.

Phrases made nouns: "*Towards the earth's centre* is down."

Kerl, p. 71.

Sentences made nouns: "'*We celebrate this day*,' was printed on their banners."

Holbrook, p. 31.

Signs used as nouns: * is called an asterisk.

Id., p. 31.

16. Personification means considering inanimate objects as persons endued with life; as, we say of the earth, "*she* is fruitful;" of the sun, "*he* has risen in *his* strength;" of time, "*he* flies on rapid wings."

Hart, p. 27.

17. No uniform rule can be given. In general, however, nouns become masculine which indicate su-

perior strength, energy and firmness. Those, on the contrary, are feminine which indicate delicacy, weakness or timidity. Examples of those which are considered masculine are, sun, time, death, etc. Examples of feminine are, moon, earth, church, nature, etc.

Id., p. 27.

18. When they refer to a class of the same character they are made plural by adding *s* when it does not coalesce in sound, otherwise *es*; as, the Cherokees; the Napoleons; the twelve Cæsars.

Common School Question Book, p. 150.

19. When the collective noun is used in the plural number, or when it denotes the whole collection as one thing, it is of the neuter gender; when it is used otherwise, its gender corresponds with the sex of the individuals composing the collection. Ex.—“Every generation has its peculiarities.” “The congregation will please to retain *their* seats.”

Kerl, p. 82, art. 226.

20. Most nouns are made plural by adding *s* to the singular.

21. Ashes, annals, cattle, scissors, suds, tongs; pride, place, business, gold; news, wages, bellows, measles.

Id., pp. 87, 88.

22. In compound words the sign of the plural is commonly added to the important part; as, *fathers-in-law*; *fly-traps*; *courts-martial*; *song-queens*.

Holbrook., p. 33.

23. By making plural the title only; as, Mr. Harper, *Messrs. Harper*; Miss Brown, the *Misses Brown*; Dr. Lee, *Drs. Lee*.

Kerl, p. 92, art. 259.

24. When the title is *Mrs.*, or when the word *two*, *three*, etc., stands before the title, the latter noun is

made plural. "The Mrs. Barlows." "The two Miss Scotts."

Kerl p. 92, art. 260.

25. As follows: "Mind your *p*'s and *q*'s;" the 9's and 11's; the *'s; the +'s; "those 3's and 3̄'s.

Harvey, p. 29.

26. Case is that modification of nouns and pronouns which, by means of form or position, indicates their relation to other words, or their independent use.

Holbrook's Grammar, p. 35.

27. Case.

1. Nominative.

1. Constructions:

1. Dependent.

1. Subj. of finite verb,
2. In the predicate,
3. In apposition with a noun or pronoun,
4. In apposition with a sentence.

2. Absolute constructions:

1. By direct address,
2. By exclamation,
3. By inscription,
4. By pleonasm,
5. With a participle.

2. Possessive.

1. Constructions:

1. Limiting noun of different signification,
2. Limiting noun of same signification.

3. Objective.

1. Constructions:

1. Obj. of transitive verb in active voice,

2. Obj. of a preposition,
3. Sub. of an infinitive,
4. In the predicate,
5. In apposition,
6. By enallage for the possessive.

28.

(1.) In the singular, by adding an apostrophe and letter *s* to the nominative form.

2. In the plural (a.), when nom. ends in *s*, by adding only the apostrophe.

(b.) Irregular plurals in the same way as the singular.

29. *S* is frequently omitted, when its addition would occasion too many successive sounds of *s*.

Id., p. 36.

30. It is an abbreviation of the old English genitive, ending *es* or *is*; the sign ' being called an apostrophe, because it indicates the omission of the *e* or *i*.

Id., p. 36.

31. A change of words, or a substitution of one gender, number, case, person, tense, mood or voice of the same word, for another.

Webster's Unabridged.

32. A Pronoun is a word used instead of a noun.
Bingham's Grammar of the English Language, p. 40.

33. The word pronoun means for a noun.

Id., p. 40.

34. A Pronoun is used to avoid the unpleasant repetition of a noun.

Fewsmith's Elementary Grammar, p. 55.

The common definition of a pronoun, that it is a "word used instead of a noun," is not correct. A pronoun is simply a noun expressing its peculiar

meaning as completely as a noun of any other class expresses its own meaning.

Butler's Practical and Critical Grammar, p. 32.

The pronoun takes the place of the noun, not merely to be a substitute for it, or to avoid a disagreeable repetition, but to represent it in some important relation.

Greene's English Grammar, p. 69.

35. Pronouns may be divided into four classes: personal, relative, interrogative, and indefinite.

Practical and Critical Grammar, Butler, p. 33.

36. A Personal Pronoun is a Pronoun whose form determines its person and number.

Clark's Normal Grammar, p. 92, Def. 95.

37. Personal pronouns have the sub-classes Simple and Compound.

Complete English Grammar, Holbrook, p. 39.

38. The simple personal pronouns are, I, thou or you, he, she, it; and their plurals, we, ye, they, etc.

Id., p. 39, Art. 234.

39. The compound personal pronouns are, myself, thyself, himself, herself, itself; and their plurals, ourselves, yourselves, themselves, etc.

Id., p. 39, Art. 235.

40. To the third person singular, he, she, it.

English Grammar, Smith, p. 19, Art. 135.

41. The first and second persons being always present, their genders are supposed to be known.

Id., p. 19, Art. 136.

42. A Relative pronoun is one that may stand for any grammatical person; and connects clauses; as, I who speak will lead the way.

Holbrook, p. 39.

43. Relative pronouns have the sub-classes Simple, Compound, and Double.

Id., p. 39, Art. 237.

44. Who, which, and that.

45. *English Grammar, Smith, p. 58.*

As, by an ellipsis of the relative, after *such*, *many*, or *same*, seems to take its place, and may be regarded as a relative, though properly speaking, it is never a relative.

English Grammar, Greene, p. 78.

46.

(a.) *Who* is used when the antecedent denotes a person : As, "The boy *who* studies."

Bingham's Grammar of the English Language p. 45, § 3, par. 5.

(b.) *Which* is used when the antecedent denotes a lower animal, or a thing without life ; as, "The horse *which* I saw."

Id., p. 45, § 31, par. 6.

(c.) *That* is used in the place of *who* or *which* ; "The Girl that we saw."

Id., p. 45, § 31, par. 7.

47.

Who is varied in declension to indicate the cases only. *Which*, *that* and *what* are not declined. But the word *whose* is also used as the possessive of *which*.

Nom.	Pos.	Obj.	Indep.
Who,	Whose,	Whom,	Who or Whom.
Which,	Whose,	Which,	Which.
That,		That,	That.
What,		What,	What.

Normal Grammar, Clark, p. 95, Def. 96, Obs. 3.

48.

Which is preferred to *that* when it introduces an explanatory proposition.

English Grammar, Lee & Hadley, p. 150.

49.

That is generally preferred to *which* when it joins a restrictive proposition to its antecedent. Ex.—“I love the flag that moved through the perilous fight.”

Id., p. 150.

50.

(a.) *What* is both a relative pronoun and a limiting adjective, and is equivalent as an adjective to *that* or *those*, as relative to *which*, and, consequently, has a double construction.

English Grammr, Greene, p. 77.

(b.) The chief characteristic of the *relative, what*, is its *double* use; being equivalent to *that* [thing] *which*, *all which*, *the* [thing] *which*, or *those* [things] *which*, &c.

Complete English Grammar, Holbrook, p. 41.

(c.) *What* by some authors is considered a simple relative, by some a double relative, and by others a compound relative.

On page 58 in Harvey's English Grammar; page 95 Clark's Normal Grammar; page 77 Greene's English Grammar, and in many others it is classed as a *simple* relative. In Holbrook's Complete English Grammar, page 41, it is classed as the *double* relative.

In Smith's New English Grammar, page 60, it is called a *compound* relative pronoun.

51. *What* is used only when the antecedent is omitted.

Bingham's Grammar of the English Language, p. 46.

52. If the antecedent is supplied, *which* must always be used.

Id., p. 47.

53. *What*, when a relative, can be changed into that which, or the thing which; as, "Tell me what [that which] you know." That, or the thing, should be parsed as the antecedent part of what, and which as the relative.

English Grammar, Harvey, p. 58, Rem. 4.

54. The Compound Relatives are formed by adding *ever*, *so*, and *soever* to the simple relatives.

Id., p. 59, *Art. 70.*

55. They are *whoever*, *whoso*, *whosoever*, *whichsoever*, *whichever*, *whatever*, and *whatsoever*.

Id., p. 59, *Art. 70.*

56. An Interrogative Pronoun is one used for asking a question, in answering a question indefinitely, and in similar indefinite expressions; as *who*, *which*, and *what* in the following sentences:

Question.—Who did it? Which was it? What is truth?

Indefinite Answers.—I know not who did it, which it was, what truth is.

Indefinite Expressions.—Find out who did it, which it was, what truth is.

English Grammar, Quackenbos, p. 68, Art. 166.

57. The Antecedent of a pronoun is the noun, or equivalent expression, instead of which the pronoun is used.

English Grammar, Harvey, p. 50, Art. 57.

58. The Antecedent may be a noun, a different pronoun, a phrase, or a clause.

Id., p. 50, *Art. 57.*

59. Interrogatives, or relatives, of the interroga-

tive kind, when they are used in asking questions, have no antecedents, but relate to some word or phrase contained in the answer, which is called a subsequent.

English Grammar, Smith, p. 61.

60. The antecedent and subsequent are opposed to each other in meaning; the former signifying going before, the latter following after.

Id., p. 61.

61. Pronouns have the same modifications of Gender, Person, Number, and Case, as Nouns.

Normal Grammar, Clark, p. 92.

62. An Adjective is a word limiting a noun or pronoun.

Complete English Grammar, Holbrook, p. 55.

63. Adjectives may be divided into two chief classes: descriptive and definitive.

Kerl's Common School Grammar, p. 108, Art, 318.

64. A Descriptive Adjective describes or qualifies. Ex.—“The *green* forest glowed in *golden* light.”

Id., p. 108, Art, 319.

65. A Definitive Adjective merely specifies or limits. Ex.—There are *many* wealthy farmers in *this* country.

Id., p. 108, Art, 320.

66. Adjectives may be divided into several smaller classes; namely, common, proper, participial, compound, numeral, and pronominal.

Id., p. 108, Art. 321.

67. A Common Adjective is any ordinary adjective that expresses quality or circumstance; as, good, upper, daily.

Id., p. 108, Art. 322.

68. A Proper Adjective is an adjective derived from a proper noun; as, French, American, Websterian.

English Grammar, Harvey, p. 38, Art. 43.

69. A Participial Adjective is one that has the form of a participle, but differs from it by rejecting the idea of time; as, an *amusing* story.

First Lines of English Grammar, Goold Brown, p. 30.

70. A compound adjective is one that consists of two or more words joined together; as, nut-brown, laughter-loving.

Id., p. 30, Rem. VI.

71. A numeral adjective is a definitive adjective that expresses number.

Common School Grammar, Kerl, p. 109, Art. 326.

72. Numeral Adjectives are divided into four classes; cardinal, ordinal, multiplicative, and indefinite.

Id., p. 109, Art. 327.

73.

1. A cardinal numeral tells how many; as, one, two.

2. An ordinal numeral tells which one; as, first, second.

3. A multiplicative numeral tells how many fold; as, single, double.

4. An indefinite numeral expresses number indefinitely; as, few, many.

Id., p. 109, Art. 327.

74. *Ans. No. 1.* Pronominal Adjectives are definitives, most of which may, without an article prefixed, represent a noun understood; as, *all* men, *each* soldier.

English Grammar, Harvey, p. 40, Art. 46.

Ans. No. 2. Pronominal adjectives are definitive adjectives that are sometimes used as pronouns.

Common School Grammar, Kerl, p. 109, Art. 328.

Ans. No. 3. A pronominal adjective is a definitive word which may either accompany its noun, or

represent it understood; as, "*All* [men] join to guard what *each* [man] desires to gain."—*Pope*.

First Lines of English Grammar, Brown, p. 30.

75. Modifications: Number; Comparison.

Complete English Grammar, Holbrook, p. 57, Art. 328.

76. Number is applied to the adjectives *this* and *that*; which have the plurals *these* and *those*. *One* has its plurals, *ones, few, several, many*; *each* has its plural, *all*.

Id., p. 57, Art. 329.

77. The Comparison of an Adjective is a statement of its different forms.

Practical and Critical Grammar, Butler, p. 69.

78. This is called comparison because the object of changing the forms of adjectives is to express comparison.

Id., p. 69.

79.

Ans. No. 1. The Degrees of Comparison are three, Positive, Comparative, and Superlative.

English Grammar and Analysis, Hart, p. 41.

Ans. No. 2. There may be four degrees of comparison.

1. Diminutive,	Bluish,	Saltish,
2. Positive,	Blue,	Salt,
3. Comparative,	Bluer.	Salter,
4. Superlative,	Bluest,	Saltest.

Normal Grammar, Clark, p. 106.

80. The Diminutive Degree denotes an amount of the quality less than the positive. It is commonly formed by adding *ish* to the form of the Positive. Ex.—*Bluish, Saltish.*

Id., p. 106, Def. 108.

81. The Positive Degree expresses quality in its simplest form. Ex.—*Blue, salt, large.*

Id., p. 106, Def. 109.

82. The Comparative Degree expresses an increase or a decrease of the Positive. It is commonly formed by adding *er*, or the words *more* or *less*, to the form of the Positive. Ex.—Larger, purer, richer, *more* common, *less* objectionable.

83. The Superlative Degree expresses the greatest increase or decrease of the quality of the Adjective. It is commonly formed by adding *est*, or the words *most* or *least*, to the form of the Positive. Ex.—Largest, *most* ungrateful, uppermost.

Id., p. 106, Def. III.

84. In Ascending comparison, the comparative and superlative degrees are regularly formed.

1st. By adding to the positive of monosyllables, *r* or *er* for the comparative, and *st* or *est* for the superlative ; as, wise, wiser, wisest.

2d. By prefixing to the positive of adjectives of more than one syllable, *more* for the comparative, and *most* for the superlative ; as, honorable, more honorable, most honorable.

English Grammar, Harvey, p. 45, Art. 52.

85. In Descending comparison, the comparative is formed by prefixing *less*, and the superlative by prefixing *least*, to the positive ; as, wise, less wise, least wise.

Id., p. 46, Art. 52.

86. Regular Comparison is made by adding to the positive, *er* for the comparative, and *est* for the superlative. Ex.—soft, softer, softest.

Complete English Grammar, Holbrook, p. 57, Art. 339.

87. Positive, good—Comparative, better—Superlative, best.

Id., p. 58, Art. 344.

88. Some adjectives having more than one super-

lative are redundant ; as, fore, former, foremost or first, near, nearer, nearest or next.

Id., p. 58, *Art.* 342.

89.

Ans. No. 1. Some Adjectives can not be compared—the qualities they indicate not being susceptible of increase or diminution. Ex.—Round, square, triangular, infinite.

Normal Grammar, Clark, p. 108, *Art.* 7.

Ans. No. 2. It is hypercritically affirmed by most grammarians that such adjectives as round, straight, perfect, and complete, do not admit of comparison. All usage, however, is against them. It is obvious to any one but a grammarian, that more 'perfect,' 'more complete,' &c., are abbreviated expressions for "more nearly perfect," &c.

Complete English Grammar, Holbrook, p. 58, *Art.* 353.

Ans. No. 3. Adjectives denoting qualities which cannot exist in different degrees, can not, with propriety, be compared—though some writers, not taking them in their full sense, often use them in the comparative and superlative degrees.

Ex.—Blind, perfect, straight. "My *sincerest* regards," "Our sight is the most perfect of our senses."

English Grammar, Harvey, p. 45, *Art.* 51.

Ans. No. 4. Adjectives which express a positive or absolute degree of quality are not compared. Such are square, circular, universal, &c. But as very few things on earth come up to an absolute standard, usage sanctions the giving to positive terms a comparative meaning. Thus, we say, "A is more upright than B," meaning that A comes nearer to being an upright man than B.

Bingham's Grammar of the English Language, p. 38,

§ 25, *par.* 12, *Rems.* 5 and 6.

90. When monosyllabic and polysyllabic adjectives come together, the monosyllables are placed first, and all are compared by prefixing *more* and *most* ; as, "The *more nice* and *elegant* parts."

English Grammar, Harvey, p. 46, Art. 52, Rem. 2.

91. An article is the word *the*, *a*, or *an*, placed before a noun to limit its meaning.

Kerl's Common School Grammar, p. 105, Art. 306.

92. That of definitive adjectives.

Bingham's Grammar of the English Language, p. 39, § 27.

93. *The* is called the definite article, because it points out some particular thing.

Greene's English Grammar, p. 59, Art. 57.

94. (a.) *A* or *an* is called the indefinite article, because it does not point out any particular thing.

Id., p. 59, Art. 57.

(b.) *A* and *an* are both called the indefinite article ; because they are but a later and an earlier form of the same word, have the same meaning, and differ in use only.

Kerl's Common School Grammar, p. 106, Art. 312.

95. *A* should be used whenever the next word begins with a consonant sound.

Id., p. 106, Art. 313.

96. *An* should be used whenever the next word begins with a vowel sound.

Id., p. 107, Art. 314.

97. No Article is used when we refer chiefly to the nature of the object, to the class generally, or to only a part indefinitely ; also when the substantive is sufficiently definite itself, or is rendered so by other words.

Id., p. 107, Art. 315.

98. A Verb is a word which expresses being, ac-

tion, or state ; as, *I am ; George writes ; the house stands.*

Harvey, p. 66, Art. 79.

99. *Ans. No. 1.* Verbs are divided, according to their use, into transitive and intransitive ; according to their form, into regular and irregular.

English Grammar, Greene, pp. 86 and 89, Arts. 82 and 84.

Ans. No. 2. With respect to their use, verbs may be divided into Copulative, Transitive, and Intransitive. With respect to their nature, into Active, Passive, and Neuter. With respect to their form, into Regular or Irregular.

English Grammar, Harvey, pp. 66 and 68, Arts. 80, 81 and 82.

Ans. No. 3. Verbs are divided according to the functions they perform, into, I. Complete Verbs. II. Incomplete Verbs.

Swinton's Progressive Grammar, p. 20, Art. 61.

Ans. No. 4. Verbs are divided, with respect to their form, into four classes ; regular, irregular, redundant, and defective. Verbs are divided again, with respect to their signification, into four classes ; active-transitive, active-intransitive, passive and neuter.

First Lines of English Grammar, Brown, p. 39.

Ans. No. 5. Verbs are divided, in regard to the chief mode of combining them, into principal and auxiliary.

Kerl's Common School Grammar, p. 128, Art. 390.

100. *Ans. No. 1.* A regular verb is one in which the past tense and the perfect participle are formed by adding *d* or *ed* to the present.

English Grammar, Lee and Hadley, p. 180.

Ans. No. 2. A regular verb is one which forms

its past indicative and past participle by adding ed to the present by the rules of spelling.

Complete English Grammar, Holbrook, p. 61, Art. 379.

101. An irregular verb is one which does not form its past indicative and past participle by adding ed to the present.

Id., p. 61, Art. 380.

102. A verb is said to be defective when some of its parts are wanting.

English Grammar, Quackenbos, p. 138, Art. 385.

103. The defective verbs are ought, beware, would, quoth or quod, wit, wis, wot, methinks, and meseems.

Id., p. 138, Art. 385.

104. A Redundant Verb is a verb that has more than one form for some of the modes and tenses.

Clark's Normal Grammar, p. 114, Def. 123.

105. Examples of Redundant Verbs,—Am or be—Break, broke or brake, broken or broke.

Id., p. 114, Def. 123.

106. An impersonal verb is one by which an action or state is asserted independently of any particular subject.

Ex.—It rains. It snows. It thunders.

Greene's English Grammar, p. 90, Art. 84.

107. Auxiliary Verbs are those by the help of which the different modes, tenses, numbers, etc., are formed.

Analytical Grammar, Pinneo, p. 73, Art. 173.

108. They are so called, because auxiliary means helping.

Id., p. 73, Art. 174.

109. The auxiliary verbs are, shall, should, will, would ; may, might ; can, could, (having two tenses) ; must, (with one tense) ; and do, be, and have, used in all the tenses.

Id., p. 73, Art. 175.

110. A Principal Verb is a verb that expresses by itself the act or state, or the chief part of it.

Kerl's Common School Grammar, p. 128, Art. 391.

111. A Complete Verb is a verb that has an appropriate form for all the modes and tenses. Ex.—Love, Recite—See—Teach.

Clark's Normal Grammar, p. 114, Def. 121.

112. A transitive verb receives or requires an object to complete its meaning.

Greene's English Grammar, p. 86, Art. 82.

113. An intransitive verb neither receives nor requires an object to complete its meaning.

Id., p. 86, Art. 82.

114. An active-transitive verb is a verb that expresses an action which has some person or thing for its object; as, "Cain *Slew Abel*."

First Lines of English Grammar, Brown, p. 39, Chap. VI.

115. An active-intransitive verb is a verb that expresses an action which has no person or thing for its object; as, "John *walks*."

Id., p. 39, Chap. VI.

116. The subdivision of verbs into active-transitive and active-intransitive is not only needless, but partial in its application. The distinction is made to apply exclusively to active verbs; whereas it may apply as well to neuter as to active verbs.

Greene's English Grammar, p. 87, Art. 82.

117. The object or complement of the transitive verb stands as an answer to the question What? or Whom? with the verb.

Id., p. 87, Art. 82.

118. To determine whether a verb is transitive or intransitive, we have only to use this test: ask with it the question What? or Whom? and if, in its signifi-

tion as used in the example in question, it has, as answer, a noun or a pronoun, meaning a different thing from the subject, or if one is obviously required to complete the meaning intended, it is transitive; otherwise it is intransitive.

Id., pp. 87 and 88, Art. 82.

119. A transitive verb in a proposition necessarily implies three terms,—a subject, a predicate, and an object.

Ex.—Cæsar (sub.) crossed (pred.) the Rubicon (obj.) *Id.*, p. 88.

120. An intransitive verb requires but two terms,—a subject and a predicate; as, “The tempest (sub.) rages (pred.)”

Id., p. 88.

121. Some verbs are, in their nature, Transitive, others are naturally Intransitive; and some others are used transitively or intransitively.

EXAMPLES:

1. “Cold blows the wind.” “Blows” is Intransitive.

2. “The wind blows the dust.” “Blows” is Transitive.

3. “It has swept through the earth.” Intransitive.

4. Jane has swept the floor.” Transitive.

5. “God moves in a mysterious way.” Intransitive.

6. “Such influences do not move me.” Transitive.

Clark's Normal Grammar, p. 113, Def. 116, Obs. 1.

122. *Ans. No. 1.* A Copulative verb is used to assert the predicate of a proposition of the subject; as, “Sugar is sweet.”

Harvey's English Grammar, p. 66, Art. 80.

Ans. No. 2. Incomplete verbs that require as complement a word (adjective, noun, or pronoun) relating to their subject are called Neuter or Copula verbs.

Swinton's Progressive English Grammar, p. 21, Art. 65.

123. The principal Copula verb is the verb To Be. Other verbs belonging to this class are Become, Seem, Appear, Grow, Feel, Look, Smell, Taste.

Id., p. 21, Art. 66.

124. A peculiarity of these Copula verbs is that each implies in its meaning the verb To Be. Thus 'Become' is really to come to be; 'Appear' is to be in appearance.

Id., p. 21, Art. 66.

125. A derivative verb generally forms its principal parts in the same way as the primitive verb.

Ex.—Mistake, mistook, mistaken; undergo, underwent, undergone.

Kerl's Common School Grammar, p. 126, Art. 372.

126. To verbs belong voice, mood, tense, number, and person.

Butler's Practical and Critical Grammar, p. 77.

127. *Ans. No. 1.* Voice is a property of transitive verbs founded on the relation of the subject to the action.

Id., p. 77.

Ans. 2. Voice is that modification of the verb which shows the relation between the verb and its subject.

Complete English Grammar, Holbrook, p. 64, Art. 411.

128. The active voice represents the subject as acting.

English Grammar, Greene, p. 91, Art. 87.

129. The passive voice represent the subject as acted upon.

Id., p. 91, Art. 87.

130. *Ans. No. 1.* Voice is a property that belongs to transitive verbs only.

Kerl's Common School Grammar, p. 129, Art. 398.

Ans. No. 2. All intransitive verbs are in the active voice because they have the form of verbs whose subjects act.

Complete English Grammar, Holbrook, p. 64, Art. 413.

131. Mode is that modification of the verb which indicates the manner or condition of the assertion.

Id., p. 64, Art. 421.

132. Modes are of two classes: Finite and Infinite.

Id., p. 64, Art. 421.

133. The Finite modes are those which are finited or limited by person and number.

Id., p. 64, Art. 422.

134. The finite modes are the Indicative, Potential, Subjunctive, and Imperative. *

Id., p. 64, Art. 422.

135. The Indicative mood is used to declare a thing as a fact or to ask a question; as, "He loves."—"Does he love?"

Grammar of the English Language, Bingham, p. 59, § 42.

136. The Subjunctive mood represents a thing not as a fact, but as simply conceived in the mind; as, "If I were a king."

Id., p. 59, § 42.

* It may be well to state that all grammarians do not agree with this classification. Some authorities as Butler, for instance, do not recognize the Potential mode; others ignore the Subjunctive, etc. The classification given is, however, the one most generally accepted.

137. The only difference between the Subjunctive mood and the Indicative mood is in the third person singular of two of the tenses, the present and the present perfect. Thus:

Indicative Present.	Subjunctive Present.
(If though, &c.), he loves.	(If, though, &c.), he love.
Indicative Pres. Perfect.	Subjunctive Pres. Perfect.
(If or though) he <i>has</i> loved.	(If or though) he <i>have</i> loved.

Progressive English Grammar, Swinton, pp. 48, and 49, Art. 158.

138. The explanation of these differences is, that in what is called the Subjunctive mood there is an auxiliary left out—either the word *will*, or the words *may can, should*.

Id., p. 49, Art. 159.

139. The subjunction is used for the most part in propositions expressing a condition or a supposition, after the conjunctions if, unless, except, though, whether, lest, and until. It is now rarely used, the forms of the indicative having taken its place.

Bingham's Grammar of the English Language, p. 59, § 42, Rem. 2.

140. The imperative mood is used in commanding, exhorting, or entreating; as, "Children, obey your parents." "Always tell the truth." "Save me, Hubert! Save me!"

Id., p. 60, § 43.

141. The imperative is now used only in the second person, singular and plural, and the subject is generally omitted, as it is always the pronoun you, and the person addressed is sufficiently known without expressing it.

Id., p. 60, § 43, Rem. 2.

142. The Potential Mood denotes power, possibility, liberty, obligation, and determination.

Analytical Grammar, Pinneo, p. 63, Art. 146.

143. This is so called, because potential means able, having power.

Id., p. 63, Art. 147.

144. The Infinite modes are those which have no limitation of person and number.

Complete English Grammar, Holbrook, p. 69, Art. 476.

145. They are ordinarily called Infinitives and Participles.

Id., p. 69, Art. 477.

146.

Def. No. 1. The Infinitive Mood is that form of the verb which is not limited to a subject, or which has no subject ; as, "To write."

English Grammar and Analysis, Hart, p. 58.

Def. No. 2. The infinitive is a verbal noun, and expresses the action of the verb simply, without reference to any subject. "To play."

Bingham's Grammar of the English Language, p. 61, § 46.

Def. No. 3. A verb used without limitation by a subject, is in the infinitive mode.

Clark's Normal Grammar, p. 119, *Def.* 132.

Def. No. 4. The Infinitive Mood is the name of the action, unlimited (from Latin *in*, not, and *finis*, a limit) by Number or Person. It is generally preceded by the sign to, but not always ; as, I like to sing ; we saw him run. The Infinitive is really a Noun.

Progressive English Grammar, Swinton, p. 49, Art. 164.

Def. No. 5. The Infinitive mode expresses the action, being, or state, without affirming it ; as, to write.

English Grammar, Harvey, p. 76, Art. 95.

Def. No. 6. An Infinitive is a form of the verb

that generally begins with to, and that expresses the act or state without predicating it.

Kerl's Common School Grammar, p. 151, Art. 471.

Def. No. 7. The infinitive represents the action or state as an abstract noun.

Greene's English Grammar, p. 94, Art. 89, Def. 9.

Def. No. 8. The Infinitive Mood partakes of the nature of the verb and of that of the noun.

Practical and Critical Grammar, Butler, p. 79.

Def. No. 9. The Infinitive is a form of the verb which names the action or being in a general way, without asserting it of anything.

Higher Lessons in English, Reed and Kellogg, p. 204.

Def. No. 10. The Infinitive Mode is that form of the verb which is used to express an action, a being, or a state, which is not limited to a subject.

Fewsmith's Elementary Grammar, p. 73.

Def. No. 11. The infinitive mood is used to express an action not limited either by person or number.

Smith's English Grammar on the Productive System, p. 65, Art. 479.

Def. No. 12. Verbs have another substantive form besides that in ing. This form is usually preceded by the preposition to, and is called the Infinitive of the verb.

Boltwood's English Grammar, p. 56, § 54.

Def. No. 13. The Infinitive Mood expresses an action or state not limited to a subject.

Quackenbos's English Grammar, p. 99, Art. 283.

Def. No. 14. The Infinitive Mode is used to express an action or a state of being in a general and unlimited manner.

Analytical Grammar, Pinneo, p. 64, Art. 153.

Def. No. 15. The Infinitive Mood is that form of the verb which expresses the being, action, or passion, in an unlimited manner, and without person or number.

Goold Brown's Elementary Grammar, p. 40.

Def. No. 16. Participles and Infinitives are assuming verbal words. They may be used as nouns, as adjectives and as adverbs.

English Grammar, Lee and Hadley, p. 211.

147. *To* is called the sign of the infinitive.

Id., p. 212.

148. After the active voice of the verbs *bid*, *make*, *need*, *let*, *feel* and *dare* ; after *let* in the passive, and after some other words, *to* is omitted.

Id., p. 212.

149. There are two infinitives ; the present and the perfect.

Kerl's Common School Grammar, p. 151, Art. 472.

150. The Present Infinitive denotes, simply the act or state.

Id., p. 151, Art. 473.

151. The present infinitive consists of *to*, combined with the simplest form of the verb ; or of *to be*, with a simple participle. Ex.—To write, to be writing, to be written.

Id., p. 151, Art. 474.

152. The Perfect Infinitive represents the act or state as completed at the time referred to.

Id., p. 152, Art. 475.

153. The perfect infinitive consists of *to have*, or *to have been*, combined with a single participle.

Id., p. 152, Art. 476.

154. Infinitives and participles have the construction of nouns, adjectives, or adverbs.

English Grammar, Holbrook, p. 129, Rule XX.

155.

Def. No. 1. A Participle is a word derived from a verb, partaking of the properties of a verb and of an adjective or a noun.

Harvey's Grammar, p. 70.

Def. No. 2. Participles are verbal adjectives, which as verbs may require an object, and as adjectives may qualify nouns.

Swinton's Grammar, p. 50, Art. 168.

Def. No. 3. A Participle is a word derived from a verb, retaining the signification of its verb, while it also performs the office of some other "part of speech."

Clark's Normal Grammar, p. 122, Def. 133.

Def. No. 4. A participle is that form of the verb which partakes of the nature both of a verb and of an adjective.

Hart's Grammar and Analysis, p. 62.

Def. No. 5. A participle is a word having the signification of a verb, but the construction of an adjective.

Greene's English Grammar, p. 97, Art. 91.

Def. No. 6. The participle is a verbal adjective, limiting a noun, or forming part of the predicate of a proposition.

Bingham's English Grammar, p. 63, § 47.

Def. No. 7. A Participle is a form of the verb that expresses the act or state without predicating it, and generally resembles an adjective.

Kerl's Common School Grammar, p. 154, Art. 483.

Def. No. 8. The Participle partakes of the nature of the verb and of that of the adjective.

Butler's Grammar, p. 79.

Def. No. 9. A Participle is a word derived from

a verb, participating the properties of a verb, and of an adjective or noun.

Goold Brown's First Lines of English Grammar, p. 63.

Def. No. 10. A Participle is a form of the verb that generally qualifies or limits the meaning of a substantive, by assuming some action or state in connection with it.

Quackenbos's English Grammar, p. 102, art. 299.

156. The participle is generally formed by adding ing, d, or ed, to the verb : thus, from the verb rule, are formed three participles, two simple and one compound; as, 1. ruling, 2. ruled, 3. having ruled.

Goold Brown's First Lines of English Gram., p. 63.

157.

Ans. No. 1. There are three participles; the present, the perfect, and the compound perfect.

Quackenbos's English Gram., p. 102, art. 300.

Ans. No. 2. There are two participles; the present and the perfect, each of which is either simple or compound.

Kerl's Common School Gram., p. 154, art. 484.

Ans. No. 3. There are, properly, two participles, the present and the perfect.

Greene's English Gram., p. 97, art. 92.

Ans. No. 4. Participles are distinguished as

- { 1. Present,
- { 2. Prior Present,
- { 3. Past.

Clark's Normal Gram., p. 122, def. 135.

Ans. No. 5. There are three participles: the present, the perfect, and the compound.

Harvey's Eng. Gram., p. 70, art. 86.

Ans. No. 6. There are two Participles—the Present or incomplete participle, as, walking, drawing;

and the Past, or complete participle, as, walked, drawn.

Swinton's Gram., p. 50, art. 169.

Ans. No. 7. English verbs have severally three participles; the First or Imperfect, the Second or Perfect, and the Third or Preperfect.

Goold Brown's Lines of Eng. Gram., p. 64.

Ans. No. 8. Transitive verbs have six participles; namely, three active and three passive. They are called, Present active, Past active, Perfect active, Present passive, Past passive, and Perfect passive. Intransitive verbs have only three participles; namely, Present active, Past active, and Perfect active.

Holbrook's Complete Eng. Gram., p. 72, art. 497.

158. A Simple Participle is a single word derived from its verb.

Clark's Normal Gram., p. 122, def. 134

159. A Compound Participle consists of a Simple Participle, with the Auxiliary Participles "having" or "being," or "having been."

Id., p. 122, def. 135.

160. The participle may have the construction of a noun, adjective, or adverb, in addition to its verbal force, that of assuming action, being, or state of being.

Holbrook's Gram., p. 73, art. 507.

161. Tense is that attribute of a verb by which it expresses distinctions of Time.

Hart's Grammar and Analysis, p. 58.

162. There are six Tenses, the Present, the Past, and the Future; the Present-Perfect, the Past-Perfect, and the Future-Perfect.

Id., pp. 58-59.

163. The Present Tense is that form of the verb which denotes simply present time.

Id., p. 59.

164. The Past Tense is that form of the verb which denotes simply past time.

Id., p. 60.

165. The Future Tense is that form of the verb which denotes simply future time.

Id., p. 60.

166. The Present-Perfect Tense is that form of the verb which denotes what is past and finished, but which is connected also with the present time.

Id., p. 60.

167. The Past-Perfect Tense is that form of the verb which denotes what was past and finished, before some other event which is also past.

Id., p. 60.

168. The Future-Perfect Tense is that form of the verb which denotes a future time prior to some other time which is itself future.

Id., p. 60.

169.

Ans. No. 1. The Prior Past Tense, the Past Tense, the Prior Present Tense, the Present Tense, the Prior Future Tense, the Future Tense.

Clark's Normal Gram., p. 126.

Ans. No. 2. The Present, the Imperfect, the Perfect, the Pluperfect, the First-future and the Second-future.

Goold Brown's Lines of Eng. Gram., p. 41.

170. The Indicative mood has all the six tenses.

Fewsmith's Eng. Gram., p. 75.

171.

Ans. No. 1. The Subjunctive has two tenses: the present and the past.

Id., p. 75.

Ans. No. 2. The Subjunctive Mode has three tenses: the present, past, and past-perfect.

Harvey's Eng. Gram., p. 80, art. 104.

Ans. No. 3. The Subjunctive Mode has six tenses,—the same as the indicative.

Greene's English Grammar, p. 107, art. 107.

172. The Potential Mode has four tenses: the present, the past, the present-perfect, and the past-perfect.

Fewsmith's Elementary Grammar, p. 75.

173. The Infinitive Mode has two tenses; the present and the present-perfect.

Id., p. 75.

174. The Imperative Mode has but one tense; the present.

Id., p. 75.

175. The forms of the verb are its various changes to express the time and state of an act in the several modes and tenses.

Greene's Eng. Gram., p. 109, art. 109.

176. Transitive verbs may have four forms.

Id., p. 109, art. 109.

177. The common, the emphatic, the progressive and the passive.

Id., p. 109.

178. Intransitive verbs may have three forms.

Id., p. 110.

179. The common, the emphatic, and the progressive.

Id., p. 110.

180. The common (indefinite) form represents an act indefinitely, as a custom, or as completed, without reference to its progress.

Id., p. 110.

181. Examples of the common form:—*I love; I loved; I shall love; I have loved.*

Id., p. 110.

182. The emphatic form represents an act with emphasis.

Id., p. 110.

183. Examples of the emphatic form—*I do write; I did write.*

Id., p. 110.

184. The emphatic form is used in interrogative or negative sentences without emphasis.

Id., p. 110.

185.

Ex.—*Do you write? Did you write? I do write.*

Id., p. 110.

186. The Progressive form is used to denote action or state in progress.

Harvey's English Gram., p. 82.

187.

Ex.—*"I am writing;" "He had been singing."*

Id., p. 82.

188. The progressive form may be used in all the modes and tenses.

Id., p. 82.

189. The progressive form is formed by prefixing the various modes and tenses of the neuter verb *to be* to the present participle of the principal verb.

Id., p. 82.

190. The Passive Form denotes the reception of an act by its subject; as, *"I am struck."*

Id., p. 82.

191. The passive form is used in all the modes and tenses.

Id., p. 82.

192. The passive form is formed by prefixing the various modes and tenses of the neuter verb *to be* to the perfect participle of the principal verb.

Id., p. 82, art. 106, Rem. 5.

193. The Ancient Form, or Solemn Style, is used in the Bible, in religious worship, and sometimes in poetry and burlesque; as, "Thou *art* the man."

Id., p. 82, art. 106, Rem. 6.

194. The Interrogative and Negative Forms.

Sigler's Eng. Exercises, pp. 92-96.

195. The Interrogative Form is made by placing the Subject after the first Helping Verb; as, *Have you* seen my book?

Id., p. 92.

196. The Present and Past Tenses are usually made from the Emphatic Form; as, *Do you* hear the alarm?

Id., p. 92.

197. The Negative Form of a verb is made by placing *not* after the first helping verb; as, He has *not* come.

Id., p. 96.

198. Compound Forms result from the formation of Interrogative and Negative and from Progressive and Passive Forms.

Id., p. 99, Lesson LI.

199. Verbs have three persons,—the first, the second, and the third; and two numbers,—the singular and the plural. These correspond to the person and the number of the subject.

Bingham's English Gram., p. 67, § 51.

200. Conjugation is the regular arrangement of all the forms of the verb.

Reed and Kellogg's Grammar and Composition, p. 205,
Lesson 132.

201. Synopsis is the regular arrangement of the forms of one number and person in all the modes and tenses.

Id., p. 205.

202. The Inflection of a verb is called its Conjugation.

Boltwood's Eng. Gram., p. 99, § 95.

203. The Verb has two Conjugations, the weak and the strong.

Id., p. 124, § 122.

204. There are two methods of forming the past tense of verbs. Most verbs form it by adding *d* or *ed* to the theme ; as,

Theme: move, live, form.

Past Tense: moved, lived, formed.

The Past Participle of all such verbs has the same form as the past tense.

Such verbs are of the Weak or Regular conjugation.

Id., p. 102, § 99.

205. Some verbs—mostly of one syllable, and all of Anglo-Saxon origin—form their past tense by changing the vowel sound of the theme, and form their Past Participle by adding *n* or *en* to the theme, or to the Past Tense ; as,

Theme: draw, grow, ride.

Past Tense: drew, grew, rode.

The past participle of such verbs generally ends in *n* or *en*.

Such verbs are of the Strong or Irregular conjugation.

Id., p. 102, § 99.

206. The theme of the verb is that form which admits the preposition *to* before it ; as, *to have*, *to see*.

This form is called the Infinitive, or unlimited form, and is generally a substantive.

Id., p. 98, § 94.

207. A word given as a model by which to inflect other words is called a Paradigm.

Id., p. 98, § 93.

208. To make a verb in Grammar, means to put it into any required form.

Id., p. 118, § 115.

209. To tell where a verb is made is to name the tense, mode, form, voice, number, and person of the verb if these can be known by the verb itself. If all these, facts cannot be known, name as many as possible.

Id., p. 118, § 115.

210.

Ex.—Where is *may be going* made? In the present potential, progressive form, active voice.

Id., p. 119.

211. The present infinitive active without its sign *to*, is the Root of the verb.

Quackenbos's English Grammar, p. 130, art. 375.

212. The Principal Parts of a verb are: I. Present Indicative; II. Past Indicative; III. Past Participle.

Swinton's Progressive Gram., p. 52, art. 178.

213. These are called principal parts because from them all other forms of the verb are made.

Holbrook's Complete Eng. Gram., p. 74, art. 529.

214. Adverbs are words used to limit the application of verbs, participles, infinitives, adjectives, adverbs, prepositions and propositions.

Lee and Hadley's Eng. Gram., p. 244.

215. Adverbs are classified according to the ideas they express, into those of:

Manner; as, well, beautifully, quickly.

Time ; as, now, to-day, to-morrow, soon.

Place ; as, where, here, there, near.

Cause ; as, why, therefore.

Degree or Quality ; as, very, exceedingly, terribly, much, less.

Number ; as, once, twice.

Order ; as, first, last, finally.

Affirmation ; as, truly, yes, certainly.

Negation ; as, no, not, not at all.

Doubt ; as, perhaps, possibly.

Direction ; as, downward, inward, upward.

Id., pp. 244-245.

216. A modifying adverb is one which limits words or phrases without having any connecting power.

Holbrook's Eng. Gram., p. 92, art. 589.

217. A conjunctive adverb is one which introduces a subordinate sentence and modifies its verb ; as, We will know the truth *when* he returns.

Id., p. 92, art. 590.

218. An adverb is equivalent to a preposition and its object limited by the adjective from which the adverb comes, or by some other adjective of like meaning.

Ex.—“He acts *wisely*.” He acts *in a wise manner*.

Bingham's English Gram., p. 87, § 64, ¶ 2.

219.

1. Adverbs of manner are mostly derived from adjectives by adding *ly* : as, *wise*, *wisely*.

2. Some adverbs are identical in form with the adjective : as, *more* beautiful.

3. Some adverbs are formed from nouns : as, *daily*, *hourly*.

Id., p. 89, § 65, nos. 1-2-3.

220. An Adverb should be placed in close proximity to the word or the words that it modifies.

Swinton's Progressive English Gram., p. 109, art. 298.

221. Adverbs have no modifications, except that a few are compared after the manner of adjectives: as, *soon, sooner, soonest*. Some are compared irregularly; as, *well, better, best*.

Goold Brown's Lines of Eng. Gram., pp. 68-69.

222. A Preposition is a word placed before a noun or pronoun to show its relation to some other word.

Grammar and Analysis, Hart, p. 90.

223. Prepositions are divided into three classes: Simple, Compound, and Complex.

Elementary Grammar, Fewsmith, p. 97.

224. A simple preposition is a preposition consisting of a single word.

Holbrook's Complete English Grammar, p. 94, Art. 618, Note.

225. Compound means compounded of two prepositions; as, *out of, from between*, etc.

Id., p. 94, Art. 618, Note.

226. Complex refers to prepositions compounded of a preposition and some other part or parts of speech; as, *on account of, to the extent of*, etc.

Id., p. 94, Art. 618, Note.

227. A Conjunction is a word whose office it is to connect words, phrases, clauses, and sentences.

English Grammar, Boltwood, pp. 87 and 88.

228. Conjunctions are classified on two bases; first, as to rank; second, as to signification.

Holbrook's English Grammar, p. 96, Art. 629.

229. As to rank, conjunctions are Coördinate and Subordinate.

Id., p. 96, Art. 630.

230. Coördinate connectives are those which join similar or homogeneous elements.

Greene's English Grammar, p. 154, Art. 143.

231. Subordinate connectives are those which join dissimilar or heterogeneous elements.

Id., p. 156, Art. 143.

232. As to signification, conjunctions are Copulative and Disjunctive.

Holbrook's English Grammar, p. 96, Art. 633.

233. A Copulative conjunction simply connects the meaning of phrases or sentences; as, The moon shines *and* the wind blows.

Id., p. 96, Art. 634.

234. A Disjunctive conjunction connects words, phrases, or sentences, yet indicates alternative, adversative, or antithetic meaning; as, He will go *or* stay; The shop was burned, *but* the house was saved.

Id., p. 90, Art. 635.

235. An Interjection is a word that is uttered merely to indicate some strong or sudden emotion of the mind; as, Oh! alas!

First Lines of English Grammar, Brown, p. 71.

236. Syntax treats of the construction of sentences.

Greene's English Grammar, p. 164, Art. 147.

237. A sentence is a complete expression of thought by means of words.

English Grammar, Boltwood, p. 146, § 153.

238. The expression of a thought involves at least, three things:

1. Some subject of thought.
2. Some idea which is connected with the subject.
3. Some word which expresses the connection of the first and second ideas.

Id., p. 146, § 153.

239. The subject is the name of the thing spoken of.

Swinton's Language Primer, p. 84.

240. The Predicate is the word or words used with the Subject in making the statement.

Id., p. 84.

241. Sentences are classified as to structure and as to the nature of the proposition.

Holbrook's English Grammar, p. 140, Art. 997.

242. Simple, complete, abridged, complex, principal, compound, partial compound, subordinate, leading and coördinate.

Id., pp. 140 and 141, Arts. 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008.

243. A simple sentence is one which contains but one subject and one finite verb; as, Life is short.

English Grammar and Analysis, Hart, p. 102.

244. A Complex sentence is one which contains a simple sentence, with one or more clauses modifying either its subject or its verb; as, A life which is spent in doing good cannot be a failure.

Id., p. 102.

245. A Compound sentence is one which contains two or more sentences, whether simple or complex, connected by one or more conjunctions; as, Life is short, but art is long.

Id., p. 102.

246. A complete sentence is one whose verb is finite.

Holbrook's English Grammar, p. 140, Art. 1000.

247. An Abridged sentence is one whose verb is in the infinitive or participial mode.

Id., p. 141, Art. 1001.

248. As to the nature of the proposition sentences are declarative, imperative and interrogative.

Id., pp. 141 and 142, *Arts.* 1009, 1010, 1011, 1012.

249. A Declarative Sentence is one that declares something; as, "The wind blows."

English Grammar, Quackenbos, p. 163, *Art.* 470.

250. An Interrogative Sentence is one that asks a question; as, "Does the wind blow?"

Id., p. 163, *Art.* 471.

251. An Imperative Sentence is one that expresses a command, an exhortation, an entreaty, or permission, and contains a verb in the imperative mood; as, "Let the wind blow."

Id., pp. 163 and 164, *Art.* 474.

252. An Exclamatory Sentence is one that exclaims something; as, "How the wind blows!"

Id., p. 164, *Art.* 477.

253. The Elements of sentences are words, phrases, and clauses.

Kerl's Common School Grammar, p. 231, *Art.* 590.

254. All sentences can be resolved into propositions or clauses.

Id., p. 231, *Art.* 591.

255. A Proposition is a subject combined with its predicate.

Id., p. 229, *Art.* 582.

256. Every proposition must have at least two principal parts; a subject-nominative and a predicate-verb.

Id., p. 231, *Art.* 594.

257. A Clause contains the elements of a sentence but does not make complete sense.

English Grammar, Boltwood, p. 149, § 156.

258. It is always used as a modifier.

Id., p. 149, § 156.

259. A Phrase is any number of related words in proper order, not forming a sentence or a clause.

Id., p. 149, § 156.

260. A Modifier is a dependent word, phrase or clause, added to some other word or expression, to limit or vary the meaning.

Kerl's Common School Grammar, p. 233, Art. 605.

261. Analysis in Grammar, is the separation of sentences into the parts which compose them.

Elementary Grammar, Fewsmith, p. 104.

262. Synthesis is the construction or formation of sentences from words.

Id., p. 104.

263. Ellipsis is the omission of one or more words, phrases, or clauses necessary to complete the sense and construction of a sentence ; as, "He loves play better than (*he loves*) study."

Id., p. 104.

264. Parsing is verbal analysis ; the naming of the several parts of speech, with the relation which each word has in the sentence.

English Grammar, Boltwood, p. 150, § 156.

265. Prosody is that part of grammar which treats of the quantity of syllables, of feet, and the modes in which they are combined in verse.

English Grammar, Quackenbos, p. 278, Art. 744.

266. Verse is language so arranged in lines that syllables of a certain length may occur at certain intervals.

Id., p. 278, Art. 745.

267. Verse is the form in which poetry generally appears. Poetry is distinguished from prose not only by this form, but by its containing more figures, as well as peculiar words and expressions.

Id., p. 278.

268. There are two kinds of verse, Rhyme, and Blank Verse. *Id., p. 278, Art. 746.*

269. Rhyme is that kind of verse in which there is a correspondence of sound in the last syllables of two or more lines. *Id., p. 278, Art. 747.*

270. Blank Verse is metrical language without rhyme. *Id., p. 278, Art. 748.*

271. By the quantity of a syllable is meant the time required for its utterance. *Id., p. 279, Art. 749.*

272. A Foot is two or more syllables, constituting a portion of a line. *Id., p. 279, Art. 753.*

273. A figure in grammar, is an intentional deviation from the ordinary spelling, formation, construction, or application of words.

First Lines of English Grammar, Goold Brown, p. 113.

274. There are figures of Orthography, figures of Etymology, figures of Syntax, and figures of Rhetoric. *Id., p. 113.*

275. A figure of Orthography is an intentional deviation from the ordinary or true spelling of a word. *Id., p. 113.*

276. A figure of Etymology is an intentional deviation from the ordinary formation of a word. *Id., p. 113.*

277. A figure of Syntax is an intentional deviation from the ordinary construction of words. *Id., p. 114.*

278. A figure of Rhetoric is an intentional deviation from the ordinary application of words. *Id., p. 115.*

QUESTIONS ON UNITED STATES HISTORY.

1. What is history ?
2. What are the divisions of history ?
3. Define Ancient history.
4. Define Modern history.
5. What is Civil history ?
6. What is Sacred history ?
7. What is Profane history ?
8. For what is Ancient history distinguished ?
9. For what is Modern history distinguished ?
10. What can be said of the first inhabitants of America ?
11. What race of people followed the Mound Builders ?
12. Why were they so named ?
13. Describe the Indian.
14. Who first suggested the idea of the rotundity of the earth ? Who confirmed it ? Who resolved to prove it ?
15. What was the great and exciting problem of the fifteenth century ?
16. Who had excited the people of Europe about the Indies ?
17. Why did Columbus wish to sail to India ?
18. Give some account of Columbus's trials and his final success.

19. How many voyages did Columbus make, and what lands did he discover in each voyage ?
20. What further can be said of Columbus ?
21. Give an idea of the character of Columbus.
22. Give an account of his burial.
23. Why was this country called America ?
24. How many and what nations took an active part in exploring North America ?
25. Name the most important Spanish discoverers and explorers.
26. Give an account of De Leon's discoveries.
27. What did Balboa discover ?
28. Who discovered Mexico ?
29. Give an account of De Ayllon.
30. What became of De Ayllon's effort to kidnap the natives ?
31. What was the result of De Ayllon's second kidnapping expedition ?
32. Give an account of Magellan's explorations.
33. What of De Soto and his explorations ?
34. Who was Melendez ?
35. What was the real object of the expedition of Melendez ?
36. Where did Melendez land and what did he do ?
37. What did Melendez next proceed to do ?
38. Give a summary of Spanish explorations.
39. Name the most important French discoverers.
40. Give an account of the explorations of Verrazani.
41. What did James Cartier discover ?
42. Name the most important English discoverers and explorers.

43. Give an account of the discovery of the Cabots.
44. This discovery was previous to what other important discoveries ?
45. Give an account of the first attempt of the English to colonize America.
46. What did Sir Walter Raleigh do ?
47. Where was the first white child of English parents born in America ?
48. What was her name ?
49. What did Raleigh call the lands he explored ?
50. What did Gosnold explore ?
51. Give an account of the Dutch explorations in America.
52. In what year did he make these discoveries ?
53. What was the Spanish claim in America ?
54. Upon whose expedition was it based ?
55. What was the French claim ?
56. What was the English claim ?
57. Upon what was the English claim based ?
58. How far westward did these claims extend ?
59. By what right did Spain claim the Pacific Coast ?
60. What was the Dutch claim ?
61. During what period in the world's history did these discoveries and explorations take place ?
62. What were the only permanent settlements at the close of the sixteenth century ?
63. Name five of the first permanent settlements made in the New World, at the beginning of the seventeenth century.
64. What inducements led Europeans to come to America ?
65. What important event transpired April 10, 1606 ?

66. What was the London company ?
67. What territory was granted to this company ?
68. Of whom was the Plymouth company composed ?
69. What right was granted to this company ?
70. What settlement did the London company make ?
71. What special importance is attached to this settlement ?
72. What was the character of the Virginia Colonists ?
73. What was their success ?
74. What distinguished man was among the first settlers ?
75. What did John Smith do for the colony ?
76. What great story is told of John Smith ?
77. When and where was the first legislative assembly ever held in America ?
78. When was slavery first introduced into the colonies ?
79. When were the Navigation acts passed ?
80. What was the purpose of these Acts ?
81. Explain the system of these Acts ?
82. What was the effect of these laws ?
83. What took place in 1676 ?
84. What was the cause of Bacon's Rebellion ?
85. What happened during this rebellion ?
86. Where was the first permanent New England settlement made ?
87. How did the New England States get their name ?
88. When and by whom was Connecticut settled ?
89. Where did they commence their first settlements ?

90. By whom was Rhode Island settled?
91. By whom was the first settlement in New Hampshire made?
92. Who made the first settlement in Maine?
93. From what did the early colonies greatly suffer?
94. What conduct and outrages led to the attitude of the Indians towards the colonists?
95. What missionary heroes worked among the Indians?
96. What may be said of the colonists with regard to education?
97. When was Harvard University founded?
98. When and where was William and Mary College founded?
99. When was Yale College founded?
100. When was Dartmouth College founded?
101. By whom was New York settled?
102. Where did they commence their settlement?
103. What took place in the year 1664?
104. Name the Dutch governors of New York in the order of their reign.
105. By whom was Delaware settled?
106. Where did they commence their first settlement?
107. What transpired in a few years after their settlement?
108. By whom was Maryland settled?
109. Why did they leave England?
110. Where did they land?
111. Give an account of the government of Lord Baltimore.
112. To whom does the honor of having first established religious freedom in America belong?

- 113. By whom was Pennsylvania settled?
- 114. When did they arrive in this country?
- 115. Where did they commence a settlement?
- 116. What can be said of William Penn's behavior to the Indians?
- 117. Explain what is meant by Mason and Dixon's line.
- 118. By whom was North Carolina settled?
- 119. Where did they commence a settlement?
- 120. When was South Carolina settled?
- 121. What was introduced into this country in the year 1700?
- 122. When and by whom was Georgia settled?
- 123. Why was it called Georgia?
- 124. From what nation were the great mass of the settlers of the U. S.
- 125. What other nations were represented?
- 126. Where were these different nationalities found in the colonies?
- 127. In what were the settlers of New England engaged?
- 128. In what were the settlers of the Middle States engaged?
- 129. In what were the settlers of Virginia and Maryland engaged?
- 130. In what were the settlers of Carolina and Georgia engaged?
- 131. What was the most commercial colony?
- 132. What was the most commercial town?
- 133. Why had Virginia no large towns?
- 134. How was trade carried on?
- 135. What was used instead of currency?
- 136. In what money were accounts kept?
- 137. When was the Federal currency adopted?

138. State something of the manners and customs of the early settlers.

139. What religious beliefs existed in the colonies?

140. Give an account of the religious persecutions.

141. Under what dominion were the colonies?

142. What kinds of Government were there?

143. Describe the commercial corporation.

144. Describe proprietary government.

145. Give examples of proprietary government.

146. Describe royal government.

147. Give examples of royal government.

148. Describe charter government.

149. Describe voluntary association.

150. Name two strange delusions in colonial history.

151. When was the printing press introduced into America?

152. Who was the first American editor?

153. Who were the founders of American literature?

154. What part had the pulpit to do in the education of the colonial times?

155. When were post-offices first established in the colonies?

156. What great men did the colonial times produce?

157. What was the population of the colonies at the close of the colonial period?

158. Name the inter-colonial wars.

159. What was the cause of King William's war?

160. When did the war begin and when did it close?

161. What was the cause of Queen Anne's war?

162. Give the dates of this war.

163. By what treaty was it ended? What was the result of the war?

164. What was the cause of King George's War?

165. What was the principal event in America?
166. Give the dates of this war.
167. What was the result of this war?
168. What was the cause of the French and Indian war?
169. Between what nations was the war fought?
170. What was this war called in Europe?
171. Name the principal events of this war.
172. Who were the principal commanders in this war?
173. Give the dates of this war.
174. What were the terms of the treaty?
175. What were the causes of the Revolutionary War?
176. What were the Writs of Assistance?
177. What was the Stamp Act?
178. When was the Boston Port Bill passed?
179. What was the Mutiny Act?
180. When and where was the first Colonial Congress held?
181. When was the first Continental Congress held?
182. Of what did it consist?
183. What did this Congress do?
184. Who were the officers of this Congress?
185. What parties existed in America at the breaking out of the Revolution?
186. Give an account of the Second Continental Congress.
187. For what is the 4th of July, 1776, memorable?
188. Who wrote the Declaration of Independence?
189. What famous foreigners assisted the Americans in the Revolution?

190. When were "The Stars and Stripes" adopted as the emblem of our nationality?

191. Give an account of the treason of Benedict Arnold.

192. Name the most important battles of the Revolution, with dates, results and commanders.

193. When was the treaty of peace concluded?

194. What were the terms of the treaty?

195. What important measure was adopted by Congress in 1777?

196. What were the Defects in the Articles of Confederation?

197. When was the Constitution of the United States adopted?

198. What two political parties were in existence at this time?

199. What were the principles of these two parties?

200. Who were the leaders of these parties?

201. Name the different places where the Continental Congress met.

202. When did the first trouble arise in reference to slavery?

203. What did each section claim?

204. What compromise was effected?

205. Who exercised this power?

206. Who was chosen first president of the United States? When and by whom?

207. Name the most important events of Washington's administration.

208. Give the history of the seats of our government.

209. Give a short history of the District of Columbia.

210. Who was chosen President after Washington?

211. What do you know about him ?
212. Name the most important events of Adams's administration.
213. Define the text of the Alien and Sedition Laws.
214. Give an account of the Presidential election of 1800.
215. What do you know of the character of Thomas Jefferson?
216. What were the important events of Jefferson's administration?
217. Give an account of the election of James Madison.
218. What were the principal events of Madison's administration?
219. Give a brief account of the Indian War.
220. What was the cause of the war in 1812?
221. What were the principal engagements of this war?
222. When and where was the treaty of peace made?
223. What is said of this treaty?
224. Give an account of the next Presidential election.
225. Name the important events of Monroe's administration.
226. Define the Monroe doctrine.
227. What was the Missouri Compromise?
228. Give a sketch of the two great parties now in power.
229. Who were the champions of these parties ?
230. What was the result of the election of 1824 ?
231. What were the events of John Quincy Adams's administration?
232. What of the Presidential election of 1828?

233. What were the important events of Jackson's administration?

234. What can you say of the Presidential election of 1836?

235. What were the events of Van Buren's administration?

236. Who was elected President in 1840?

237. What was the meaning of the election?

238. Give an account of the death of President Harrison.

239. Who then became President?

240. Name the events of these administrations.

241. What was the issue of the campaign of 1844?

242. Who was elected President?

243. What was the cause of the war with Mexico?

244. Name four or five of the principal battles of this war.

245. What is there remarkable about the battles of this war?

246. Who were the most noted commanders on both sides?

247. What treaty formally ended the Mexican War?

248. State the territory ceded by this treaty to the United States.

249. What other events transpired during Polk's administration?

250. What was the Wilmot Proviso?

251. Who were candidates for the Presidency in the election of 1848?

252. What were the principles of the Free-soilers?

253. Who was elected?

254. When did Taylor die?

255. Who then became President?

256. What were the events of this administration?
257. Give an account of the admittance of California into the Union.
258. What compromise measure passed Congress?
259. What were the provisions of the Omnibus Bill?
260. What was the question at issue in the campaign of 1852?
261. Who were the candidates?
262. Who was elected?
263. What were the events of this administration?
264. What was the Gadsden purchase?
265. What was the Kansas-Nebraska Bill?
266. What was this doctrine called?
267. What was the result of this bill?
268. When did it become a law?
269. What did it bring about?
270. What new party came into existence in 1853?
271. What were the principles of this party?
272. What new party was organized out of the Freesoilers?
273. What principle did the Democrats advocate?
274. What candidates were put in the field?
275. What were the events of Buchanan's administration?
276. What was the "Dred Scott" decision?
277. Into how many parties were the people divided in 1860, and who was elected president?
278. What immediate effect did the election have in South Carolina?
279. What other States followed the lead of South Carolina?
280. Give a sketch of the formation of the new government.

281. What may be given as the causes of the Civil War?
282. What was the policy of Abraham Lincoln?
283. When and where was the first gun of the Rebellion fired?
284. What was remarkable about this contest?
285. When and where was the first blood shed?
286. What can you say of the flags of the two nations?
287. Name the states that formed the Southern Confederacy.
288. Name some of the most important battles won by the Confederates.
289. Name some of the most important battles won by the Federals.
290. Name the hard fought battles in which neither army was successful.
291. What virtually closed the Civil War?
292. What occurred five days after Lee's surrender?
293. Who now became President?
294. What political questions came up for consideration?
295. What important events occurred during Johnson's administration?
296. What was the cost of the war?
297. Who was the next President?
298. Name the most important events of Grant's administration.
299. Name the events of Grant's second administration.
300. Who was elected President in 1876?
301. Mention the events of Hayes's administration.

MISCELLANEOUS QUESTIONS.

302. Name the Presidents who served two terms.

303. Name the Presidents who died in office.
304. What administrations were troubled with wars?
305. What Presidents did the Federal party elect?
306. The Old Republican party?
307. The Democratic party?
308. The New Republican party?
309. What Presidents were elected without opposition?
310. Name some of our most eminent inventors.
311. Who was our most eminent literary, political and scientific writer?
312. Name our distinguished metaphysician.
313. Our lexicographers.
314. Name our mathematicians.
315. Our naturalists.
316. Our novelists.
317. Our historians.
318. Our poets.
319. Our journalists.
320. Our sculptors.
321. Our painters.
322. Our orators.
323. What territory belonged to the United States when it began its existence as a nation?
324. What country was organized as the *Northwest Territory*?
325. What States have been carved out of this territory?
326. What was the *Southwest Territory*?
327. What States have been formed from it?
328. Was Maine one of the thirteen original States?
329. Was Vermont?
330. Give the early history of Maine.
331. Give the early history of Vermont.

332. What States and Territories have been formed out of the Louisiana purchase?
333. Give the early history of Florida.
334. What region was long known as Oregon?
335. Upon what grounds did the United States claim it?
336. Give the early history of Texas.
337. By what name was Alaska formerly known?
338. How did the United States acquire this territory?
339. From what comes the real glory of a nation?

ANSWERS TO QUESTIONS ON UNITED STATES HISTORY.

1. The word History is of Greek origin, signifying in that language a learning or knowing by inquiry, and in English a record of past events.

Gilman's General History, p. 1

2. History is divided into Ancient and Modern; which is also divided into Civil, Sacred and Profane.

A Catechism of the History of the U. S., p. 9.

3. Ancient History is an account of all events that have taken place from the creation of the world to the birth of Christ.

Id., p. 9.

4. Modern History embraces an account of all events from the birth of Christ until the present time.

Id., p. 9.

5. Civil History is an account of the rise, continuance, and fall of empires, kingdoms, and states.

Id., p. 9.

6. Sacred History is that which is contained in the Sacred Scriptures.

Id., p. 10.

7. Profane History is properly the history of fabulous gods, and heroes of antiquity.

Id., p. 10.

8. Ancient History is distinguished for the rise and

fall of the four great empires: Assyria, Persia, Greece and Rome.

Id., p. 10.

9. Modern History is distinguished for the invention of gunpowder, the art of printing, and the discovery of America.

Id., p. 10.

10. The first inhabitants of America are unknown. The name given them is Mound-Builders, owing to the great mounds and earth-works to be found in different parts of the country, of which the Indians have no traditions.

Taylor's U. S. H., p. 18.

11. The Indians.

Id., p. 18.

12. Columbus named them "Indians" because he thought the island he had found was a part of *India*, or Eastern Asia.

Swinton's First Lessons in our Country's History, p. 28.

13. The Indian is tall, straight and well proportioned. His skin is of a copper brown; his hair long, black and coarse. They were uncivilized, had no written books, no well organized society, or arts, or manufactures, or agriculture. They lived mainly by hunting and fishing, and cultivating patches of Indian corn, beans, potatoes and melons. Their great delight was in war and the chase. They lived in rude huts called wigwams, and their dress was the skin of wild beasts.

The arts of the whites greatly injured them. The guns which they got from the whites only made them reckless in their destruction of game, and rendered their petty wars more frequent and more bloody. The rum of the white man turned them into brutes.

The cottons and calicoes which they learned to

use in place of their own furs and deer-skins, caused sickness and consumption.

Id., pp. 29 and 30.

14. Toscanelli, Sir John Mandeville, Christopher Columbus.

Taylor's Brief History of the American People, pp. 27 and 28.

15. The great problem of the fifteenth century was to find a near route to India.

Id., p. 27.

16. Marco Polo, a Venetian, had traveled to the east, and returned with wonderful accounts of the riches of Cathay and the Islands of Cipango, called, generally, the East Indies, and now known to be China and Japan.

Willard's United States History, p. 22.

17. Since the route at that time to this rich country of spices, silks, pearls and gold was overland by caravans, dangerous and expensive, Columbus thought that it would be a great thing if he could go to India all the way by sea. Columbus was also a deeply religious man, and he longed greatly to bring the unknown barbarous nations of the far East to a knowledge of the Christian faith.

Swinton's First Lessons in Our Country's History, p.

4.

18. Columbus being too poor to fit out an expedition himself, first applied to his own countrymen for aid, and then to the king of Portugal. He next turned to Spain, and in the meantime sent his brother to England, but these people had no time to listen to a poor sailor at whom everybody laughed, and the children mocked him as he passed in the streets. Success came at last. Eighteen years had now passed since he conceived his great design, seven of which

were spent waiting for the answer of Ferdinand. Saddened by his continual failures, he was leaving Spain, begging a little food at convent doors, and resolving to apply to the king of France. At a lonely mountain pass he was overtaken by a messenger from the queen, Isabella, asking him to return to the capital.

Urged by a desire to spread the Catholic faith throughout the world, and to see Spain the mistress of lands in Asia, the queen had changed her mind. To the cold objections of Ferdinand she nobly answered, "I undertake the enterprise for my crown of Castile, and will pledge my jewels to raise the necessary funds."

Taylor's Brief History of the American People, p. 29.

19. Four. In his first voyage Columbus discovered Guanahani, to which he gave the name of San Salvador—the Spanish words for Holy Savior. In his second voyage he discovered the Winward Isles, Jamaica and Porto Rico. In his third voyage he discovered the Island of Trinidad, and the mainland of South America, near the mouth of the Orinoco. In his fourth voyage he visited the places which he had previously discovered, and made some explorations along the south side of the Gulf of Mexico.

Ridpath's School History, p. 17.

20. Columbus never dreamed that he had discovered a new continent, and died supposing that he had opened the new route to Asia. His later years were saddened by persecution and neglect, and he died in poverty and obscurity, at Valladolid, Spain, May 20th, 1506, in the seventy-first year of his age.

Model School History, Taylor, p. 31.

21. Columbus was a man of commanding presence. In character he was one of the greatest souls that ever lived. He was a man of lofty intellect, of

wonderful enthusiasm, and of a deep religious nature.

Swinton's Condensed History of the U. S., p. 6.

22. His remains were carried to Seville; afterwards they were removed to San Domingo, and in 1796 to the Cathedral at Havana, where they now rest.

Id., p. 6.

23. The country was called America from Americus Vesputius, who sailed to the New World on a voyage of discovery after Columbus had reached the Continent; Americus explored still farther, the new regions, and on his return to Spain published an account of his discovery and the country in consequence received from him the name of *America*.

History of the U. S., Kerney, p. 14.

24. The *four powers* which took an active part in exploring North America were Spain, England, France and Holland.

Taylor's Model History, p. 32.

25. Columbus, Vespucci, De Leon, Balboa, Grijalvah, De Ayllon, De Narvaez. Magellan, De Soto, and Melendez.

History of the United States, Henry, pp. 24 and 25.

26. *Ponce de Leon* (pōn'-thā-dā-lā-ōn') was a gallant soldier, but an old man, and in disgrace. He coveted the glory of conquest to restore his tarnished reputation, and, besides, he had heard of a magical fountain in this fairy land, where one might bathe and be young again. He accordingly equipped an expedition, and sailed in search of this fabled treasure. On Easter Sunday (*Pascua Florida*, in Spanish), 1512, he came in sight of a land gay with spring flowers. In honor of the day, he called it Florida. He sailed along the coast, and landed here and there, but returned

home at last, an old man still, having found neither youth, gold, nor glory.

Barnes's Brief History of the United States, pp. 26 and 27.

27. Balboa discovered the Pacific Ocean, Sept. 26, 1513, while ascending the mountains of the Isthmus of Panama.

School History of the United States, Henry, p. 16.

28. Mexico was discovered by Grijalvah, (gre-haul'-vah), in 1518.

Id., p. 16.

29. In 1520, Vasquez de Ayllon, (vas'-keth-da al'-yon), a wealthy Spaniard, undertook an expedition to America, and, landing on the present coast of South Carolina, decoyed a number of natives on board his fleet, and steered for home, intending to sell them in Europe as slaves.

Id., p. 16.

30. Three of the vessels were wrecked, and most of the Indians were drowned.

Id., p. 18.

31. De Ayllon was honorably received by his government, and was sent on another kidnapping expedition; but this was unsuccessful, resulting in De Ayllon's pecuniary ruin. Thus ended the first attempt to enslave the Indians, who, thenceforth, lost all confidence in Spanish honor.

Id., p. 18.

32. Magellan was the first European to sail upon the Pacific, (1519). On account of its calm and peaceful appearance when first traversed, he gave it the name *Pacific*. He was also the first that sailed around the world, (1519-21.)

Id., p. 16.

33. De Soto explored the interior of the Southern States, discovering the Mississippi River, 1541.

Swinton's Condensed U. S. History, p. 23.

34. In 1565, the king of Spain,—the bigoted Philip II.,—sent Pedro Melendez (me-len'-deth), "a soldier of ferocious disposition and criminal practices," to colonize Florida.

School History of the United States, Henry, pp. 18 and 19.

35. The real object of this expedition was to break up and destroy a colony of French Protestants, called Huguenots, who the year before, had made a settlement near the mouth of the St. John's River, territory claimed by Spain.

Id., p. 19.

36. Melendez with his men, landed on the north-eastern shore, near the mouth of a small river, on St. Augustine's day, (2d of September). Here he laid the foundation of the town of St. Augustine, (Sept., 1565),—the oldest settlement, by forty-two years, within the United States.

Id., p. 19.

37. Melendez next turned his attention to the Huguenots, whom he found and attacked. The Huguenots put to sea in their vessels, but a furious storm arose and dashed to pieces every ship in the fleet. Most of them, however, reached the shore. Here they were attacked by the forces of Melendez; and men, women and children were alike butchered,—only a few escaping.

Id., p. 19.

38. The Spaniards, having planted themselves on the great islands they first discovered, pushed out in different directions to the main-land. They soon overran Central America, Mexico, and Peru. Within the

present limits of the United States they were also active: 1. *Florida*, a vast and undefined region, was partially explored; 2. The *Mississippi* was discovered; 3. *New Mexico* was explored; 4. *St. Augustine* and *Santa Fe* were founded; 5. The coast of *California* was examined for many leagues.

Smaller School History of the United States, Harper, p. 9.

39. Verrazzani and Cartier.

Anderson's Gram. School United States, p. 18.

40. Verrazzani (*va-rat-tsah' ne*), a Florentine, was sent out by the French king, in the year 1524, in command of an exploring expedition. He first touched the coast at North Carolina, and explored as far north as Newfoundland. It is believed that he entered the harbors of New York and Newport. Verrazani's voyage was the foundation of the French claim in America.

Harper's History of the U. S., p. 10.

41. In 1534, James Cartier, (*kar-te-ah'*), sent out by the king of France, discovered and explored the Gulf and the River of St. Lawrence.

School History of the United States, Henry, pp. 19 and 20.

42. The Cabots, Sir Francis Drake, Sir Humphrey Gilbert, Sir Walter Raleigh, Bartholomew Gosnold, Martin Pring and George Waymouth.

Id., p. 25.

43. The Cabots discovered Labrador, (1497); and Sebastian Cabot, in a second voyage, sailed along the coast from Labrador to Chesapeake Bay, (1498).

Grammar School History of the U. S., Anderson, p. 18.

44. This was one year before Columbus discovered

South America, and two years before Vespucci visited the continent.

School History of the United States, Henry, p. 21.

45. The first attempt of the English to colonize America was made by the brave Sir Humphrey Gilbert, who, under authority of Queen Elizabeth, endeavored to establish a settlement at New Foundland, (1583). The enterprise was unsuccessful.

Id., p. 21.

46. Raleigh sent an expedition to North Carolina (1584); and made two attempts to found a colony (1585, 1587).

Anderson's Grammar School History, p. 18.

47. The first white child of English parents in America was born at the temporary settlement on the island of Roanoke, in 1587.

Henry's School History of the U. S., p. 21.

48. Her name was Virginia Dare.

Id., p. 21.

49. Raleigh called the lands he explored, *Virginia*, in honor of Elizabeth, who was called the Virgin Queen.

Id., p. 21.

50. Gosnold explored the coast of Massachusetts (1602).

Grammar School History, Anderson, p. 18.

51. The Dutch made a single expedition under Henry Hudson, who discovered and explored the Hudson River, and traversed the coast northward to Hudson Bay.

Model School History, Taylor, pp. 34 and 35.

52. In 1609.

Swinton's Condensed U. S. History, p. 19.

53. The Spanish claim of Florida stretched northward without any definite limits.

Harper's School History of the U. S., p. 17.

54. It was chiefly based on the expedition of De Leon.

Id., p. 17.

55. The French claim, under the name of New France, extended from New York to Labrador, and was founded on the voyage of Verrazani. During the following century it was extended to the great lakes and the entire Mississippi Valley.

Id., p. 17.

56. The English claim of Virginia stretched from Florida as far as Labrador.

Id., p. 17.

57. It was based on the voyages of the Cabots.

Id., p. 17.

58. All these three nations claimed westward to the Pacific Ocean.

Id., p. 17.

59. Spain claimed the Pacific Coast by exploration.

Id., p. 17.

60. The Dutch claim, named New Netherland, in the year 1614 was based on Hudson's discovery, and extended from the 40th to the 45th degree north latitude.

Id., pp. 17 and 18.

61. These explorations had lasted during the fifteenth and sixteenth centuries.

Barnes's Brief History of the U. S., p. 40.

62. At the close of the sixteenth century, the only permanent settlements were those of the Spaniards at St. Augustine and Santa Fe.

Id., p. 40.

63.

1. The French at *Port Royal*, N. S., 1605.
2. The English at *Jamestown*, 1607.
3. The French at *Quebec*, 1608.
4. The Dutch at *New York*, 1613.
5. The English Puritans at *Plymouth*, 1620.

Id., p. 40.

64. The principal inducements that first led Europeans to come to America were: the hope of finding a western passage to India; eagerness to amass sudden fortunes by conquest or mining; curiosity and love of adventure; the prospect of profit from the Newfoundland fisheries, and from trade in train-oil, walrus-tusks, bear-skins, and beaver-skins; zeal to convert heathen peoples to Christianity; and the design of planting colonies.

Venable's United States History, pp. 14 and 15.

65. April 10, 1606, was an important day for the western continent. On that day the king of England issued two great patents to men of that country, authorizing them to possess and colonize most of that portion of North America lying between the thirty-fourth and forty-fifth degrees of latitude, and extending from ocean to ocean.

Model School History, Taylor, p. 39.

66. *The London Company* was an association composed of nobles, gentlemen, and merchants residing in London.

Id., p. 40.

67. To this company was granted the territory lying between the thirty-fourth and thirty-eighth degrees--from Cape Fear to the Potomac.

Id., p. 40.

68. *The Plymouth Company* was composed of persons from Plymouth, in the west of England.

Id., p. 40.

69. It was granted the exclusive right to plant colonies between the forty-first and forty-fifth degrees—from New York City to Halifax.

Id., p. 40.

70. In May, 1607, a colony of one hundred and five persons, under the auspices of the London Company, began the settlement of *Jamestown*, on the James River, in Virginia.

Campbell's Concise School History of the United States, p. 23.

71. This was the *first permanent English settlement in America*.

Id., p. 23.

72. They were mostly gentlemen by birth, unused to labor. They had no families, and came out in search of wealth or adventure, expecting, when rich, to return to England.

Brief History of the United States, Barnes, p. 46.

73. The climate was unhealthy, and before the first autumn half of their number had perished.

Id., p. 46.

74. Captain John Smith.

Id., p. 46.

75. John Smith alone saved the colony from ruin. First as a member of the council, and afterward as president, his services were invaluable. He persuaded the settlers to erect a fort and build log huts for the winter. He made long voyages, carefully exploring Chesapeake Bay, securing the friendship of the Indians, and bringing back boat-loads of supplies. He trained the tender gentlemen till they learned how to swing the axe in the forest. He declared that "he who would not

work, might not eat." He taught them that industry and self-reliance are the surest guarantees to fortune.

Id., pp. 46 and 47.

76. A well-known story is related of Smith on one of his expeditions. He was captured by the Indians and carried before their chief, Powhatan, whose headquarters were near the present site of Richmond. He was condemned to death, but was saved by Powhatan's daughter, *Pocahontas*. It is believed that this is a fiction; but there really was such an Indian girl as Pocahontas, and, some years after, she married one of the colonists, named John Rolfe.

Swinton's Condensed U. S. History, p. 32.

77. In 1619 the first representative assembly ever convened in America was held at Jamestown.

Id., p. 33.

78. Negro slaves were first brought to Virginia in a Dutch man-of-war, in 1620. They were soon afterward introduced into all the other colonies. The price of a Negro in New Amsterdam ranged between \$125 and \$150.

Quackenbos's History of the U. S., p. 99.

79. In 1660 the English Parliament passed certain laws called the Navigation Acts.

Swinton's Condensed U. S. History, p. 35.

80. The purpose of these Acts was to give England the entire control of all the trade of the Colonies.

Id., p. 35.

81. The Virginians were not allowed to send their *products* anywhere but to England; they were not allowed to *buy goods* anywhere but in England; and everything had to be carried in *English* vessels.

Id., pp. 35 and 36.

82. These laws bore very heavily on Virginia. They produced great discontent, and were one of the causes of the Revolution.

Id., p. 36.

83. In 1676, civil war broke out in Virginia. This war is known as "Bacon's Rebellion."

Id., p. 36.

84. The cause of it was ill-feeling which had arisen between the people and the aristocratic party in Virginia.

Id., p. 36.

85. The country was laid waste, and Jamestown burned to the ground; but it was terminated by the death of Bacon.

History of the U. S., Kerney, p. 20.

86. At Plymouth, Massachusetts, in 1620, by the Pilgrims.

Anderson's Grammar School History of the U. S., p. 49.

87. In 1614 this section of the country was visited by the celebrated Captain Smith, who explored the coast, and on his return to Europe, made a map of the country and called it *New England*.

History of the U. S., Kerney, p. 20.

88. In 1636, by a company of persons from Massachusetts, with their minister, Mr. Hooker.

Id., p. 22.

89. At Windsor, Hartford, and Weathersfield.

Id., p. 22.

90. Rhode Island was settled in 1636, by Roger Williams, a clergyman, who was expelled from Massachusetts on account of his religious opinions.

Id., p. 22.

91. By the Rev. Mr. Wheelright, and a few follow-

ers, who were also banished from Massachusetts on account of their religion.

Id., p. 22.

92. The first settlement in Maine was made by Ferdinand Gorges in 1636.

Id., p. 22.

93. They suffered greatly from the hostilities of the Indians.

Id., p. 22.

94. Columbus himself carried a considerable number of the natives to Europe, where they were sold into slavery.

Another explorer carried off fifty to the same fate.

Another, having induced the confiding Indians to enter his ship, closed the hatchways, spread the sails and started for the West Indies. Another enticed the King of the Hurons on board his vessel, and carried the captive chief to France, where he died of loneliness and grief. Their wrongs would make a long record of inhumanity. "The entire aboriginal population of the West Indies became extinct under the iron rule of the Spaniards." The practice of selling Indians into bondage in Europe continued for nearly two centuries. The news of these and other wrongs spread from wigwam to wigwam, from tribe to tribe, till the tales of treachery and outrage reached the most distant nations of North America; and a general distrust of the whites, spread among the Indians, which led to three hundred years border warfare, and which was in no wise allayed by the conduct of the colonists themselves toward the savages.

Model School History of the U. S., Taylor, pp. 64 and 65.

95. Rev. John Eliot who was followed by John Sargent, David Brainard, David Zeisberger, James Marquette, Thomas Mayhew, and others.

Id., p. 66.

96. They took deep interest in the affairs of education, and at an early period established schools and colleges for the education of their children.

Catechism of U. S. History, Kerney, p. 23.

97. In the year 1638, at Cambridge.

Id., p. 24.

98. In the year 1693, in Virginia.

Id., p. 24.

99. In the year 1700, at Saybrook, in Connecticut.

Id., p. 24.

100. In the year 1769, at Hanover, New Hampshire.

Id., p. 24.

101. By a company of Dutch, in the year 1614.

Id., p. 24.

102. They sailed up the Hudson River, and commenced a settlement near the present city of Albany; they also commenced another settlement on Manhattan Island, where the city of New York now stands, and called it New Amsterdam.

Id., p. 24.

103. New Amsterdam was conquered by the English, and called New York, in honor of the Duke of York, to whom it was granted.

Id., p. 25.

104. Peter Minuit, Wouter Van Twiller, Sir William Kieft and Peter Stuyvesant.

Swinton's Condensed U. S. History, p. 58.

105. Delaware was settled by the Swedes and Finns, in 1630.

Catechism of U. S. History, Kerney, p. 25.

106. Near the entrance of the Delaware Bay, where they laid the foundation of Lewistown, the oldest town in the State.

Id., p. 25.

107. The Swedes and Finns were conquered, and their colony subdued by Stuyvesant, the Governor of New Netherlands.

Id., p. 25.

108. The settlement of Maryland was commenced in 1633, by a colony of Roman Catholics under Lord Baltimore, a native of England.

Id., p. 25.

109. They left England because they were greatly persecuted on account of their religion.

Id., p. 25.

110. They landed on the shores of the Chesapeake Bay, and commenced a settlement at a village which they purchased from the Indians, and called St. Mary's.

Id., p. 25.

111. The government of Lord Baltimore was established on the most liberal principles. Civil and religious liberty were proclaimed; no one was molested on account of his religion; and all were permitted to worship God according to the dictates of their own conscience.

Id., p. 26.

112. To the Roman Catholics of Maryland.

Id., p. 26.

113. By a company of Friends, or Quakers, under the celebrated William Penn.

Id., p. 26.

114. The first company arrived in the year 1681, but Penn himself did not arrive until about a year later, with another party.

Id., p. 26.

115. They purchased the land from the natives, and commenced a settlement on the Delaware river, where the city of Philadelphia now stands.

Id., p. 26.

116. Penn's behavior to the Indians was truly noble and Christian-like. Soon after his arrival he made his famous treaty with the Indians. Both parties lived up to this treaty; and as long as the Quaker control of the Colony lasted, which was seventy years, there was unbroken harmony between the whites and the red man.

Swinton's Condensed U. S. History, p. 67.

117. The boundary between Pennsylvania and Maryland had caused much trouble for many years. It was finally settled in 1767, when two surveyors, Mason and Dixon, fixed the present boundary. The boundary was afterwards known as "Mason and Dixon's line."

Id., p. 69, Art. 206.

118. In the year 1650, by a colony from Virginia.

Catechism of U. S. History, Kerney, p. 27.

119. Near Albemarle Sound.

Id., p. 27.

120. In the year 1689, where Charleston now stands.

Id., p. 27.

121. In the year 1700 the cultivation of cotton and rice was introduced.

Id., p. 27.

122. In the year 1732, by Mr. Oglethorpe, who commenced a settlement where the city of Savannah now stands.

Id., p. 27.

123. It was called in honor of George the Second, at that time King of England.

Id., p. 27.

124. In the year 1750 the great body of the inhabitants in the colonies were either English or their descendants.

Harper's School History of the U. S., p. 54.

125. The Dutch, French, Scotch, Irish, Swedes and Germans.

Id., p. 54.

126. The Dutch were numerous in New York; the French were found in New York and South Carolina; the Scotch and Irish, in East Jersey, the Carolinas, and Georgia; the Swedes, on the Delaware; the Germans, in Pennsylvania and North Carolina.

Id., p. 54.

127. In New England the inhabitants were occupied in farming, lumbering, manufacturing, ship-building, and the fisheries.

Id., p. 54.

128. In the Middle States they were chiefly farmers.

Id., p. 54.

129. In Virginia and Maryland the principal staple was tobacco, and farming was the main business.

Id., p. 54.

130. In Carolina and Georgia were the rice plantations, near the coast; on the high lands the settlers were farmers. Cotton was not yet cultivated to any extent.

Id., pp. 54 and 55.

131. The most commercial colony was Massachusetts.

Id., p. 55.

132. Boston, from the first, was the most active of all the towns in shipping.

Id., p. 55.

133. If we examine a map of Virginia, we may notice how many large rivers run into Chesapeake Bay. Up these the ships went to the plantations, and took away the produce of the planters, leaving other things in exchange. This is the reason why the colonists of Virginia did not collect in large towns.

Id., p. 55.

134. The trade of the colonies was, in early times, mainly carried on by exchange or barter.

Id., p. 55.

135. In Virginia, for a long time, tobacco was used as money; in New England, wampum, made of shells; in New York, beaver-skins.

Id., p. 55.

136. The currency was English-pounds, shillings, and pence.

Id., p. 55.

137. Dollars and cents came in with the Revolution.

Id., p. 55.

138. The mode of life was exceedingly simple. The people wore home-spun clothes, and made their yarn from the wool of their own sheep. All persons were required by law to dress within their means. The roads were poor and wheeled vehicles were scarce. The food was simple but abundant. The houses were mostly log cabins, with small windows, and chimneys

made of sticks and clay plaster. The furniture was generally very simple and plain.

Model School History, Taylor, pp. 72 and 73.

139. The religious belief of the colonists differed greatly, though nearly the entire population professed Christianity. Maryland, founded by Catholics, soon had, like the other colonies, a majority of Protestants. The Church of England—the Episcopal,—prevailed in Virginia and South Carolina. In New England, the people were largely Calvinistic in doctrine and Congregational in practice. In New York, the Dutch Reformed were supreme.

The Quaker element predominated in Pennsylvania, Delaware, Rhode Island and New Jersey. Roger Williams established at Providence the first Baptist Church in America. The French Protestants—the Huguenots,—were found in considerable numbers in New York and Carolina.

Id., pp. 73 and 74.

140. A war of sects was waged in several of the colonies. The people forgot their ideas of tolerance and religious equality when power came to them. "New England Protestants appealed to Liberty; then they closed the door against her." It was a sad, strange picture of life. The Puritans imprisoned Baptists and executed Quakers. The Churchmen in Virginia banished Puritans and imprisoned Baptists. The Protestants in Maryland disfranchised the Catholics. But as years passed away, a more kind, tolerant spirit prevailed; and long before the end of the colonial period the illiberal sentiment of persecution had passed away.

Id., p. 74.

141. The Thirteen Colonies, each and all, from the time of their founding down to the Declaration of Independence in 1776, were under the dominion of the crown of England.

Swinton's Condensed U. S. History, p. 84.

142. There were several different kinds of government in the Colonies, and various Colonies from time to time, changed their government. The kinds of government were : Commercial Corporation, Proprietary, Royal, Charter, and Voluntary Association.

Id., p. 84.

143. The government of a commercial corporation, as the London Company, which ruled over Virginia in early times.

Id., p. 84.

144. Proprietary government, the rule being under some proprietor or proprietary to whom the king granted the Province.

Id., p. 84.

145. Pennsylvania under William Penn, and Maryland under Lord Baltimore, are examples of proprietary government.

Id., p. 84.

146. Royal government, or the government of the King of England through some royal governor appointed by the crown.

Id., p. 84.

147. Almost all the Colonies were, sooner, or later, under royal government.

Id., p. 84.

148. Charter government was the government of the colonies by a charter or written instrument, given by the king, and granting certain political rights and privileges.

Id., p. 84.

149. There were some colonies founded by the people themselves, without the authority of king or company or proprietor. This kind of government may be called government by voluntary association.

Id., p. 84.

150. The Salem Witchcraft and the Negro Plot of New York.

Model School History, pp. 49 and 52.

151. In the year 1639, an English printer named Stephen Day, set up at Cambridge the first printing press. The first newspaper appeared in 1704, and was called the *Boston News Letter*.

Id., p. 88.

152. John Campbell was the first American editor.

Id., p. 88.

153. Increase Mather, one of the early presidents of Harvard College, and his son, Cotton Mather. Cotton Mather's *Magnalia*, a religious history of New England, was the first important book written by a native of this country.

Id., p. 90.

154. The pulpit was a great educator of the times. Many of the ministers were men of superior scholarship, who preached their long, strong sermons to congregations of farmers, mechanics, and small tradespeople of the district. In many a parsonage the Scriptures were read in the original languages at the morning and evening worship. For two-thirds of a century metaphysical theology had held the ascendancy in the ministry; but the clergy did not stop with the discussion of dogmas; they led and inspired the people; they kept patriotism aflame; they promoted vital religion; they moulded national character.

Id., p. 89.

155. In the year 1693, Parliament voted to establish post-offices in the colonies, and Thomas Neale was authorized to transmit letters and packets "at such rates as the planters should agree to give."

Id., p. 85.

156. Jonathan Edwards, the theologian; Benjamin Franklin, the philosopher and statesman; James Otis and Patrick Henry, the great orators.

Id., pp. 94 and 95.

157. Nearly 3,000,000.

Swinton's U. S. History, p. 90.

158. I. King William's War; II. Queen Anne's War; III. King George's War; IV. French and Indian War.

Henry's School History of the United States, pp. 43, 44 and 45.

159. King William's War was a contest between France and England. When James II. was forced to abdicate the throne, he fled to France. The king of that country lent him an army to assist him in his attempts to regain the throne. This led to a war between the two countries, which extended to their colonies in America.

Id., pp. 43 and 44.

160. The war began in 1689, and closed in 1697 by the treaty of Ryswick.

Id., p. 44.

161. England, Holland and Germany formed an alliance against France in 1701, to prevent the union of France and Spain. The war which followed is known in English history by the name of "the war of the Spanish Succession." In this country it was called "Queen Anne's War."

Id., p. 44.

162. It began in 1702 and continued till 1713—eleven years. *Id.*, p. 44.

163. It was ended by the treaty of Utrecht. Acadia was ceded to England.

Barnes's Brief History of the United States, p. 80.

164. Disputes arose in Europe about the succession to the Austrian throne, and France and England took opposite sides.

Harper's United States History, p. 37.

165. The principal event in America was the capture of the strong French fortress of Louisburg, on Cape Breton Island. *Id.*, p. 38.

166. The war began in 1744 and ended in 1748 by the treaty of Aix-la-Chapelle, in Prussia.

Id., p. 38.

167. Louisburg, the capture of which had cost the colonies so much effort, was restored to France.

Id., p. 38.

168. Jealousy and envy on account of their respective possessions in America were the chief causes of the war.

Henry's School History of the U. S., p. 45.

169. Between England and her colonies, with a few Indians, on the one side, and France and her colonies, largely aided by the Indians, on the other.

Anderson's Grammar School, U. S. History, p. 54.

170. The Seven Years War.

Campbell's School History of the U. S., p. 61.

171. Washington's journey across the Alleghanies, Battle of the Great Meadows, Braddock's Defeat, Capture of Louisburg, Battle of Lake George, Capture of Crown Point and Ticonderoga, Capture of Niagara and Quebec.

Henry's School History of the U. S., pp. 46, 47 and 48.

172. English, Braddock, Amherst, Wolfe, Abercrombie and Washington; French, Dieskau and Montcalm.

Id., pp. 46, 47 and 48.

173. This war broke out in 1754, and closed by the treaty of Paris, 1763.

Id., pp. 45 and 48.

174. France ceded to Great Britain all her American possessions east of the Mississippi, and north of the Iberville River, in Louisiana. At the same time Spain ceded Florida to Great Britain.

Anderson's United States History, p. 63.

175. The isolated position of America, the tendency of her governments and anti-monarchical institutions, the prevailing customs and opinions of her self-reliant people, inevitably destined her for a separate national existence. Causes less natural hastened severance from the mother country. Among these causes were unjust legislation in England, and despotic administration of British officials in the colonies.

United States History, Venable, p. 90, Art. 112.

176. Writs of Assistance were granted, empowering the holder to invade any one's premises and search for contraband goods.

Id., p. 91.

177. The "Stamp Act," passed in 1765, requiring a heavy duty to be paid upon all legal documents, newspapers, pamphlets, &c.

Henry's School History of the U. S., p. 54.

178. The "Boston Port Bill" passed in 1774, effectually destroying the business of New England merchants.

Id., p. 54.

179. The "Mutiny Act," passed in 1774, requiring the colonists to provide quarters and supplies for British troops stationed among them.

Id., p. 54.

180. The Colonial Congress met in October, 1765, at New York, and agreed on a "Declaration of Rights and Grievances of the Colonies." A petition to the king, and memorials to both houses of Parliament, were also prepared and adopted.

Harper's School History of the U. S., p. 81.

181. The First Continental Congress was held at Philadelphia, September 5, 1774.

Henry's School History of the U. S., p. 56.

182. It consisted of talented and influential men from all the Colonies, except Georgia.

Id., p. 56.

183. It issued a protest against standing armies being kept in the Colonies without consent of the people, and agreed to hold no intercourse with Great Britain.

Id., p. 56.

184. Peyton Randolph, of Virginia, was chosen president, and Charles Thomson, of Pennsylvania, secretary.

Harper's School History of the U. S., p. 84.

185. Two parties had arisen, Whigs and Tories, the latter friends to Parliament and the King.

United States History, Venable, p. 97.

186. May 10th, 1775, the second Continental Congress convened at Philadelphia. That body decided to raise an army of twenty thousand men; and, on the 15th of June, by a unanimous vote, elected George Washington commander-in-chief of "the forces raised or to be raised in defence of American liberties."

Anderson's United States History, p. 71.

187. On the 4th of July, 1776, Congress passed the famous Declaration of Independence from Great Britain forever.

Harper's School History, p. 94.

188. The great man who wrote this Declaration was Thomas Jefferson, of Virginia, assisted by Benjamin Franklin, of Pennsylvania, Roger Sherman, of Connecticut, Robert R. Livingston, of New York, and John Adams, of Massachusetts.

Id., p. 94.

189. Through the commissionership of Franklin, secret aid in the form of loans and war stores was obtained from France. A number of foreign patriots volunteered their services to aid the cause of American independence. Among those that, during the war, rendered valuable services as officers were the German barons John De Kalb and Frederick Steuben, the Poles Thaddeus Kosciusko and Count Casimir Pulaski, and especially the French Marquis de La Fayette.

Venable's United States History, p. 105.

190. "The Stars and Stripes"—the prettiest flag in the world—was adopted as the emblem of our nationality, June 14th, 1777. The 13 stripes, 7 red and 6 white, alternating, represent the Thirteen Original States, and an additional star is placed upon it for every new State. Thirty-eight stars now spangle its blue fold.

Henry's School History of the U. S., p. 63.

191. In September, 1780, the treason of Benedict Arnold was discovered. This man, an unsuccessful horse-dealer in Connecticut, had entered the army at the beginning of the war, and had gained much credit on the expedition to Quebec in 1775. He was now discontented, and offered to betray West Point, of

which, by a display of patriotism, he had gained command. Major John Andre, who was the agent of communication between General Clinton and Arnold, was captured and the plan exposed. Arnold escaped to England, but Andre was hung as a spy at Tappan, N. Y., October 2d.

Gilman's General History, p. 347.

192. 1. Battle of Lexington, April 19, 1775; Am's victorious. Maj. Pitcarn commanded Br.; Am's had no commander. 2. Capture of Ticonderoga by Am's, May 10, 1775. Allen and Arnold commanded Ams.; Delaplace, the Br. 3. Battle of Bunker Hill, June 17, 1775; Am's defeated. Col. Prescott commanded Am's; Gen. Howe, the Br. 4. Attack on Quebec, Dec. 31, 1775; Am's defeated. Montgomery and Arnold commanded Am's; Carleton, the Br. 5. Evacuation of Boston by the British, March 17, 1776. Washington commanded Am's; Gen. Howe the Br. 6. Battle of Long Island, Aug. 27, 1776; Am's defeated. Washington commanded Am's; Gens. Howe and Clinton, the Br. 7. Battle of White Plains, Oct. 28, 1776; Am's defeated. Washington commanded Am's; Gen. Howe, the Br. 8. Battle of Trenton, Dec'r 25, 1776; Am's victorious. Washington commanded Am's; Col. Rahl, the Hessians. 9. Battle of Princeton, Jan'y 3, 1777; Am's victorious. Washington commanded Am's; Cornwallis, the Br. 10. Battle of Bennington, Aug. 10, 1777; Am's victorious. Gen. Stark commanded Am's; Col. Baum, the Br. 11. Battle of the Brandywine, Sept., 1777; Am's defeated. Washington commanded Am's; Cornwallis and Clinton, the Br. 12. Battle of Germantown, Oct. 4, 1777; Am's defeated. Washington commanded Am's; Gen. Howe the Br. 13. First Battle of Saratoga, Sept. 19, 1777; Am's victorious. Gen. Gates

commanded Am's; Gen. Burgoyne, the Br. 14. Second Battle of Saratoga, Oct. 7, 1777; Am's victorious. Gen. Gates commanded Am's; Gen. Burgoyne, the Br. 15. Battle of Monmouth, June 28, 1778; neither army victorious. Washington commanded Am's; Gen. Clinton, the Br. 16. Massacre of Wyoming, July 3, 1778, by Tories and Indians. Butler and Brandt conducted the slaughter. 17. Massacre at Cherry Valley, Nov. 17, 1778, by Tories and Indians. Butler and Brandt conducted the slaughter. 18. Capture of Stony Point, July 25, 1779, by the Am's. Gen. Wayne commanded Am's; Col. Johnson, the Br. 19. Attack on Savannah, Sept., 1779; Americans repulsed. Lincoln and D'Estaing commanded Am's and Fr.; Prevost, the Br. 20. Paul Jones's Naval Battle, Sept. 23, 1779; Am's victorious. Paul Jones commanded Am's; Pearson, the Br. 21. Capture of Charleston, May 12, 1780, by the Br. Gen. Lincoln commanded Am's; Gen. Cornwallis, the Br. 22. Battle of Camden, May 12, 1780; Am's defeated. Gen. Gates commanded Am's; Cornwallis, the Br. 23. Battle of King's Mountain, Oct. 7th, 1780; Am's victorious. Campbell and Shelby commanded Am's; Maj. Ferguson, the Br. 24. Battle of the Cowpens, Jan. 17, 1781; Am's victorious. Gen. Morgan commanded Am's; Col. Tarleton, the Br. 25. Battle of Eutaw Springs, Sept. 8, 1781; Am's victorious. Gen. Greene commanded Am's; Cornwallis, the Br. 26. Siege of Yorktown. Surrender of Cornwallis, Oct. 19, 1781. Washington commanded Am's; Cornwallis, the Br.

School History of the United States, Henry, pp. 73, 74 and 75.

193. On the 30th of November, 1782, a preliminary treaty was signed at Paris by commissioners from the two governments, those from the United States being

John Adams, Benjamin Franklin, John Jay, and Henry Laurens. On the 19th of April, 1783, a cessation of hostilities was proclaimed in the American army; and on the third of September following, a definite treaty was signed at Paris.

Anderson's United States History, p. 98, Art. 116.

194. By the terms of the treaty, Great Britain acknowledged the independence of the United States, and the boundaries were fixed at the great lakes on the north and the Mississippi on the west. She also conceded the right to fish on the Banks of Newfoundland. Florida was returned to Spain.

Id., p. 98, Art. 117.

195. The Articles of Confederation.

Harper's School History of the U. S., p. 118.

196. 1. Congress could ascertain the sum necessary to defray the expense of the public service, but it could not collect a dollar. It could contract debts, but it could not raise money. Some of the States made the desired levy, some delayed, and others refused. 2. There was no power to regulate commerce, either foreign or domestic. State taxation of goods brought in from adjoining States, was very common, and produced endless disputes and bitterness. 3. Nearly all the powers of Congress were merely advisory. It could declare anything, but it could do nothing.

Model School History, Taylor, p. 134, Art. 73.

197. It was adopted September 17th, 1787, by a convention at Philadelphia, which was called to revise the Articles of Confederation.

School History of the United States, Henry, p. 72.

198. In some sections the new constitution met with the most determined opposition. Two political parties came into existence—the Federalists and Anti-Federalists, or Republicans.

Id., p. 72.

199. The former favored the Constitution, and advocated a centralized government; the latter advocated the doctrine of state sovereignty, and opposed a central government.

Id., p. 72.

200. The leaders of the Federal party were Alexander Hamilton, James Madison and John Jay. Thos. Jefferson was the great head of the Anti-Federal, or Republican party.

Id., p. 72.

201. Philadelphia, 1774-76; Baltimore, 1776; Philadelphia, 1777 : Lancaster and York, 1777 ; Philadelphia, 1778-83 ; Princeton, 1783 ; Annapolis, 1783 ; Trenton, 1784 ; New York, 1785-89 ;

Swinton's United States History, p. 160.

202. The first slavery trouble arose in the convention that adopted the Constitution of the United States. Violent disputes arose between the two sections concerning the ratio of representation.

Model School History, Taylor, p. 135.

203. The northern members claimed that slaves should not be counted in representation and taxation; the southern, that they should.

Id., pp. 135 and 136.

204. A compromise was effected by which ever afterward during the existence of slavery in the country, five slaves were equal in political power to three white men.

Id., p. 136.

205. This power was exercised by the masters, and not by the slaves; and thus, in several States of the South a white man had twice as much political power as a white man in the North.

Id., p. 136.

206. George Washington. 1789. By the whole people.

Id., p. 138.

207. Appointment of the Cabinet, United States Bank chartered, Capital of the U. S. changed, Vermont, Kentucky and Tennessee admitted into the Union, Indian War in Ohio, Death of Franklin. Events of Washington's Second Administration—Genet recalled by France, the Whisky Rebellion, Treaty with England.

Harper's United States History, pp. 122, 123, and 124.

208. New York City was the first seat of our Government; thence it was transferred to Philadelphia; and in 1800 it was removed to Washington City, in the District of Columbia.

Henry's School History of the U. S., p. 82.

209. The District of Columbia was formerly ten miles square, given to the United States in 1790, by Maryland and Virginia, for the purposes of a National Capital. In 1800 it became the seat of the General Government, and the residence of the President and the other chief executive officers of the nation. In 1846 by an act of Congress, the part given by Virginia was restored to that State. Consequently the District is now confined to the Maryland side of the Potomac, and contains about 70 square miles.

Id., p. 82.

210. In the fall of 1796, John Adams, the nominee of the Federalists, was elected over his opponent, Thomas Jefferson.

Venable's United States History, pp. 141 and 142.

211. Adams was a native of Massachusetts. He was an able lawyer and a good writer.

Id., p. 142.

212. Troubles with France, Death of Washington, Dec. 14, 1799, Death of Patrick Henry, Removal of National Capital from Philadelphia to Washington City, Passing of the Alien and Sedition Laws.

Id., pp. 142 and 143.

213. "Owing to the violent denunciations of the Government by the friends and emissaries of France, the *alien* and *sedition* laws were passed. Under the former, the President could expel from the country any foreigner whom he deemed injurious to the United States; under the latter, any one libelling Congress, the President or the Government, could be fined or imprisoned. This was a most unpopular measure, and excited the bitterest feeling."

Henry's School History of the U. S., p. 83.

214. The quarrel between the two great political parties—the Federalists and Republicans—grew more and more bitter as the presidential election approached. Adams was re-nominated by the former; Jefferson was the candidate of the latter. The Republicans triumphed. Thomas Jefferson, of Virginia, was chosen President, and Aaron Burr, of New York, Vice-President.

Harper's School History, p. 125.

215. Thomas Jefferson was a ripe scholar, a bold reformer, the founder of the Republican party, and the author of the Declaration. He was an ardent supporter of the doctrine of State Rights, and led the opposition to the Federalists.

Model School History, Taylor, p. 156.

216. The purchase of Louisiana, from France, in 1803, for \$15,000,000; War with Tripoli; The Hamilton-Burr duel, July 11th, 1804; Expedition of Lewis and Clarke, 1804; The First Steamboat, Robert Fulton,

1807; Slave Trade Abolished, 1808.

Henry's School History of the U. S., pp. 84-85.

217. The Republicans, or Democrats elected James Madison as fourth President, and on March 4th, 1809, he was duly inaugurated. He was re-elected in 1812, thus serving eight years.

Id., pp. 85-86.

218. The principal events were a war with the Indians of the Northwest, and the second war with England, usually styled "The War of 1812."

Id., p. 86.

219. British emissaries aroused the Indians to war. A confederacy of the Northwestern tribes was formed by the famous chief Tecumseh. The war was terminated by General Harrison's victory at the battle of Tippecanoe, Indiana, Nov. 7th, 1811.

Id., p. 86.

220. For a series of years England had oppressed American commerce. She had, besides, haughtily seized American seamen from the decks of American vessels, claiming them as deserters from her flag. It was no longer to be borne, and on the 19th of June, 1812, President Madison published a proclamation of war against England.

Harper's School History of the U. S., pp. 129-131.

221. Naval battle between the Essex (Am.) and the Alert (Br.), Aug. 13, 1812. Com. Porter commanded Am's. Am's. victorious. Surrender of General William Hull to British, Aug. 15, 1812, on eve of battle. Naval battle between Constitution (Am.) and Guerriere (Br.), Aug. 19, 1812. Capt. Isaac Hull commanded Am's; Capt. Dacres, the Br. Am's victorious. Battle of Frenchtown, Jan. 22, 1813; Am's defeated. General Winchester, commander of the Americans; Gen.

Proctor, the Br. Naval Battle between the Chesapeake (Am.) and the Shannon (Br.), Jan. 1, 1813. Capt. Lawrence commanded Am's; Capt. Broke, the Br. Am's defeated. Naval battle between Am. fleet and Br. fleet, on Lake Erie, Sept. 10, 1813. Com. Perry commanded Am's; Com. Barclay, the Br. Am's victorious. Battle of Lundy's Lane, July 25th, 1814; Am's victorious. Gen. Winfield Scott commanded Am's.; Gen. Riall, the Br. Capture of Washington City, Aug. 24, 1814, by the Br. Gen. Ross burned the Capitol building. Battle of New Orleans, Jan. 8, 1815; Am's. victorious. Gen. Jackson commanded Am's; Gen. Pakenham, the British.

Henry's School History of the U. S., pp. 95-96-97.

222. A treaty of peace was concluded at Ghent, Dec. 24, 1814.

Harper's School History of the U. S., p. 140.

223. Not a word was said in the treaty about oppressions on American commerce, nor about the right of search—the two causes of the war.

Id., p. 140.

224. In the Presidential election held in the Autumn of 1816, James Monroe, of Virginia, was elected by the Republicans, or Democrats.

Henry's School History of the U. S., p. 101.

225. The Formation of the Colonization Society; The Construction of the Erie Canal; War with the Seminole Indians; Florida ceded to the United States; The Monroe Doctrine; LaFayette's visit; Mississippi, Illinois, Alabama, Maine and Missouri admitted into the Union; The Missouri Compromise.

Id., pp. 102-103.

226. In one of President Monroe's messages, he declared, "that any attempt by a European nation to gain

dominion in America, would be considered by the United States an unfriendly act."

Id., p. 103.

227. When the admission of Missouri was proposed, a violent debate arose on the question, whether it should be a slave or a free state. It was finally arranged, in 1820, by an agreement, known as the Missouri Compromise, that Missouri might come in as a slave state, but that slavery should be prohibited in all other territory belonging to the United States west of the Mississippi and north of parallel 36° 30'.

Campbell's School History of the U. S., p. 138.

228. The great party which had twice triumphantly elected Monroe, was now divided into the Whig party and the Republican, or Democratic party. The Whigs were in favor of a protective tariff and a general system of internal improvements; the Democrats, opposed them.

Henry's School History of the U. S., p. 104.

229. John Quincy Adams and Henry Clay were the champions of the Whigs; Andrew Jackson and John C. Calhoun of the Democrats.

Id., p. 104.

230. No one receiving a majority of the electoral votes, the election went to the House of Representatives, by whom John Quincy Adams was chosen.

Anderson's Grammar School History of the U. S., p. 137.

231. The High Protective Tariff of 1828; Deaths of John Adams and Thomas Jefferson, July 4, 1826; Construction of the First Rail Road, 1827.

Henry's School History of the U. S., pp. 104-105.

232. The election of President during the fall of 1828 ended in the choice of General Andrew Jackson,

of Tennessee, the hero of New Orleans. His election was considered a triumph of the Democrats over the Whigs and the protective system.

Harper's United States History, p. 145.

233. Asiatic Cholera, in 1832; Black Hawk's War; New Tariff Law, 1832; Nullification Act of South Carolina; Removal of the Cherokees; The Texan War; Great Fire in New York City, Dec. 16, 1835; Florida, or Seminole War, 1835; Abolition of the United States Bank; Death of Six Eminent Men; Admission of Arkansas and Louisiana.

School History of the United States, Henry, pp. 105, 106, 107, 108, 109.

234. The election of President Van Buren was a triumph for the Democrats. It was a continuation of Jackson's policy.

Swinton's History of the U. S., p. 188, Art. 143.

235. The "Panic of '37;" the Canadian Rebellion; Passage of the Sub-Treasury Bill.

Id., pp. 188 and 189.

236. The *ninth* President of the United States was William Henry Harrison of Ohio.

Id., p. 189.

237. The election of President Harrison was a triumph of the Whig party.

Id., p. 190, Art. 149.

238. President Harrison had been just a month in office when he died.

Id., p. 190, Art. 150.

239. By the terms of the Constitution, Vice-President Tyler succeeded him in the office of President.

Id., p. 190, Art. 150.

240.

Ans. No. 1. Tyler leaves the Whigs; Sub-Treasury bill Repealed; Resignation of the President's

Cabinet; Boundary of Maine settled in 1842; Rebellion in Rhode Island; Annexation of Texas.

Harper's School History of the U. S., pp. 149, 150 and 151.

Ans. No. 2. The Return of the Wilkes's Exploring Expedition; Invention of the Sewing Machine, by Elias Howe, 1853; The Great Mormon Excitement of 1844; Invention of the Magnetic Telegraph, F. B. Morse, 1837; the Admission of Florida, Texas and Iowa.

School History of the U. S., Henry, pp. 110 and 111.

241. The Texan question was the main issue of the campaign of 1844—the Democrats being for, and the Whigs against, annexation.

Id., p. 112.

242. Jas. K. Polk was the Democratic candidate, and was inaugurated eleventh President, March 4th, 1845.

Id., p. 112.

243. The passage of the resolutions permitting Texas to join the Union was considered by the Mexicans as an act of hostility. Moreover the western boundary of Texas was in dispute. The Texans claimed the country as far as the Rio Grande, while, on the other hand, the Mexicans contended that the revolted province had never spread farther westward than the River Nueces.

History of the U. S., Campbell, p. 146.

244. Battles of Palo Alto and Resaca de la Palma, May 8 and 9, 1846. Capture of Monterey, Sept. 24, 1846. Battle of Buena Vista, Feb'y 23, 1847. Capture of City of Mexico, Sept. 14, 1847.

Harper's School History, pp. 152, 154 and 156.

245. The Americans gained every battle.

Henry's School History of the U. S., p. 116.

246. Gens. Taylor and Scott, Am's; Santa Anna, the Mexicans.

Id., pp. 116 and 117.

247. The Mexican War was *formally* ended by the treaty of Guadalupe Hidalgo, concluded February 2, 1848.

United States History, Swinton, p. 197, Art. 187.

248. The treaty of Guadalupe Hidalgo ceded to the United States all the vast territory now comprised in New Mexico, Utah, and California. In return Mexico received a compensation of fifteen millions of dollars.

Id., pp. 197 and 198, Art. 188.

249. Smithsonian Institution established in April, 1846; Northern Boundary of the United States settled, June, 1846; Gold Discovered in California, Feb., 1848; Wisconsin admitted into the Union.

School History of the United States, Henry, pp. 115 and 116.

250. Both political parties made efforts to secure the control of the territory acquired by the war. For this purpose, the Wilmot Proviso, so named from its author, David Wilmot, of Pennsylvania, was introduced into Congress, excluding slavery from the whole of the new acquisitions. It was long discussed, but finally defeated.

Model School History, Taylor, p. 230, Art. 332.

251. In the campaign of 1848, three distinct parties—the Whigs, the Democrats, and the Free-soilers—brought out candidates. Taylor was nominated by the Whigs; General Lewis Cass of Michigan, by the Democrats; and Martin Van Buren, by the Free-soilers.

History of the United States, Venable, p. 187, Art. 212.

252. They held that Congress should prohibit the introduction of slavery into the territories.

Id., p. 187, Art. 212.

253. Zachary Taylor.

Id., p. 187, Art. 212.

254. When sixteen months had elapsed, Pres. Taylor's administration was abruptly closed by his death, which occurred, after a brief illness, on the 9th of July, 1850.

Id., p. 187, Art. 212.

255. The Vice-President, Millard Fillmore of New York, now became chief magistrate.

Id., p. 187, Art. 212.

256. Admission of California, Sept. 9, 1850; The Passage of the Omnibus Bill;" Cuban "Fillibustering;" Deaths of John C. Calhoun, March 31, 1850, Henry Clay, June 28, 1852, Daniel Webster, Oct. 24, 1852.

School History of the U. S., Henry, pp. 125 and 126.

257. California formed a Constitution, and applied to Congress for admission into the Union as a free state. Her admission was opposed by the Southern leaders, and for several months a hot discussion was carried on within the walls of Congress.

School History of the U. S., Campbell, p. 156.

258. The measures devised by Clay, known as the Omnibus Bill or Compromise of 1850, passed Congress in Sept.

Id., p. 157.

259. It provided, 1st. For the admission of California as a free state. 2d. For organizing territorial governments in Utah and New Mexico, without any provision for or against slavery. 3d. For establishing the boundary of Texas, as at present, and paying that state ten millions of dollars to relinquish all claim to

additional territory. 4th. For prohibiting, not slavery, but the *slave-trade in the District of Columbia*. 5th. For the enactment of a *Fugitive Slave Law*, to enable masters to recover their slaves escaping to a free state.

Id., p. 157.

260. The question at issue was the Compromise Act of 1850.

Model School History, Taylor, p. 235.

261. The Candidates were Franklin Pierce, of New Hampshire, representing the Democratic party; General Winfield Scott represented the Whigs; and John P. Hale, of New Hampshire, the Freesoilers.

Id., p. 235, *Art.* 347.

262. Pierce was elected by a large majority, Scott receiving the vote of only three states.

Id., p. 235, *Art.* 347.

263. The Gadsden Purchase; The World's Fair, at New York, July 14, 1853; The treaty with Japan; Commencement of the Pacific Railroad; the Kansas-Nebraska Bill; Assault on Charles Sumner.

Id., pp. 236, 237 and 239.

264. The United States acquired 27,000 square miles of territory south of the Gila (he'-lah) river, by paying Mexico \$10,000,000. This transaction is known as the Gadsden purchase.

School History of the U. S., Henry, p. 126.

265. In 1853 Stephen A. Douglas introduced the famous Kansas-Nebraska Bill, organizing the Territories of Kansas and Nebraska, and giving the inhabitants of each Territory the right to decide for themselves, whether the State should be admitted free or slave.

Id., p. 127.

266. This doctrine was called "squatter sovereignty."

Id., p. 127.

267. As it was a repudiation of the Missouri Compromise, it caused violent and intense feeling.

Id., p. 127.

268. It became a law in 1854.

Id., p. 127.

269. It brought about a "border warfare" between the pro-slavery and the anti-slavery men.

Id., p. 127.

270. The Know-Nothings, or Americans.

Id., p. 127.

271. It entertained the principle that America should be ruled by Americans and opposed the influence of foreigners.

Id., p. 127.

272. The Free-Soil Democrats organized a new party styled "Republicans."

Id., p. 127.

273. The Democrats were in favor of letting slavery extend wherever it found its way by the voice of the people.

Id., p. 128.

274. In the election of 1856 the Know-Nothings supported ex-President Fillmore; the Republicans, John C. Fremont; and the Democrats Jas. Buchanan. Buchanan was elected.

Id., p. 128.

275. The "Dred Scott" Decision; Trouble with the Mormons; John Brown's Raid; Oregon, Kansas and Minnesota admitted into the Union.

Id., pp. 128 and 129.

276. This decision, which was delivered by Chief Justice Taney, declared the Missouri Compromise un-

constitutional; that the Constitution gave slave-owners the right to hold their slaves in the territories, and that neither negro slaves nor their descendants, slave or free, could become citizens of the United States.

School History of the United States, Campbell, p. 160.

277. Four. Abraham Lincoln, the candidate of the Republican party was elected.

Id., p. 161.

278. When it became known that the party opposed to the further extension of slavery had been successful, and that Lincoln would be the the next president, public meetings were held in South Carolina to bring about a secession of that state from the Union ; and, on the 20th of December, 1860, an ordinance of secession was passed by a state convention held in Charleston.

Anderson's United States History, p. 158.

279. January, 1861, five of the slave states,—Mississippi, Florida, Alabama, Georgia and Louisiana, passed secession ordinances; and, on the first of February, Texas did the same.

Id., p. 158.

280. On the fourth of February, 1861, a congress composed of delegates from all these states, except Texas, met at Montgomery; and four days after, organized a government by the adoption of a "Provisional Constitution," assuming the title of the "Confederate States of America.

Id., p. 159.

281.

1. The difference in habits and pursuits had tended to weaken the bonds of common ancestry.

2. Different opinions of the nature of the government,—whether it was an indivisible union or a mere

compact of states,—had existed from the days of Washington.

3. It had long been foreseen that the balance of political power, which was steadily moving northward, would at some time overthrow the southern rule.

4. The failure of the Missouri Compromise, which had preserved peace for forty years, revived the earlier threats of disunion.

5. The tariff, resulting in nullification, was seen to favor the manufacturing North at the expense of the cotton growing South.

6. Little intercourse between the two sections led to jealousy and suspicion, till they looked upon each other almost as separate nationalities.

7. The publication of sectional books, whose popularity depended on the animosity between the two sections, were generally filled with ridicule and falsehood, and did much to embitter the sectional hatred.

8. The slavery question; especially as involved in the annexation of Texas, The Fugitive Slave Law, the Dred Scott Decision, the Kansas struggle, the John Brown raid,—these, all these tended to alienate the sympathies of the people, and, in the excitements of the passing hour, made them forget their common interests and their common struggles for independence. The gates of war were opened.

Model School History, Taylor, p. 249.

282. President Lincoln's Inaugural Message was full of expressions of good-will to the South, urging obedience to the laws, and affirming that he "had no lawful right," and "no inclination," to interfere with slavery; that secession meant anarchy; and that, if

war should arise, the South would be the aggressors.

Harper's School History of the U. S., p. 166.

283. The first gun of the war was fired at Fort Sumter, S. C., at half-past four o'clock Friday morning, Apr. 12, 1861.

Barnes's Brief History of the U. S., p. 216.

284. This "strange contest between seventy men and seven thousand," lasted for thirty-four hours, no one being hurt on either side.

Id., p. 216.

285. A regiment of Massachusetts militia hurrying to the defence of the national capital, was attacked in the streets of Baltimore, and several men were killed. Thus the first blood shed in the civil war was April 19, 1861.

Id., p. 217.

286. The Confederate flag—the "Stars and Bars"—was conspicuously displayed everywhere in the South; the "Stars and Stripes," everywhere in the North.

Henry's School History of the U. S., p. 132.

287. The eleven States that formed the Southern Confederacy, were: South Carolina, Mississippi, Alabama, Florida, Georgia, Louisiana, Texas, Virginia, Arkansas, North Carolina, Tennessee.

Id., p. 133.

288. Bull Run, Va., July 21, 1861; Cedar Mountain, Va., Aug. 9, 1862; Second Bull Run, Va., Aug. 29, 1862; Harper's Ferry, Va., Sept. 15, 1862; Fredericksburg, Va., Dec. 13, 1862; Chancellorsville, Va., May 2d and 3d, 1863; Chickamauga, Ga., Sept. 19th and 20th, 1863; Cold Harbor, Va., June 3d, 1864.

Id., pp. 150 and 151.

289. Rich Mountain, Va., July 11, 1861; Fort Henry, Tenn., Feb. 6, 1862; Fort Donelson, Tenn., Feb. 16, 1862; Pea Ridge, Mo., March 6, 1862; Merrimac and Monitor, Va., March 9, 1862; New Orleans, La., April 28, 1862; Murfreesboro', Tenn., Dec. 31, 1862; Vicksburg, July 4, 1863; Gettysburg, Pa., July 1st and 3d, 1863; Chattanooga, Tenn., Nov. 23d and 24th, 1863; Alabama and Kearsarge, Naval Battle, June 15th, 1864; Lost Mountain, Ga., June 15th and 17th, 1864; Atlanta, Ga., Sept. 2d, 1864; Second Battle Cedar Creek, Va., Oct. 19, 1864; Nashville, Tenn., Dec. 15th and 16th, 1864; Petersburg and Richmond, Va., April 2d, 1865.

Id., pp. 152 and 153.

290. Indecisive Battles of the War: Shiloh, Tenn., April 6, 1862; Fair Oaks, Va., May 31, 1862; Savage Station, Va., June 29, 1862; Frazier's Farm, Va., June 30, 1862; Antietam, Md., Sept. 17, 1862; Perryville, Ky., Oct. 8, 1862; Wilderness, Va., May 5th and 6th, 1864; Spottsylvania, Va., May 8th and 12th, 1864.

Id., p. 153.

291. The surrender of Lee's Army at Appomattox Court House, April 9, 1865.

Swinton's Condensed U. S. History, p. 286.

292. The assassination of President Lincoln.

Harper's School History, p. 195.

293. Vice-President Johnson.

Id., p. 196.

294. The reconstruction of the Secession States.

Id., p. 197.

295. The Amnesty Proclamation; Tenure of Office Bill; Impeachment of the President; Laying of the Atlantic Cable; Purchase of Russian America.

Id., pp. 196-196.

Also, The 13th Amendment to the Constitution ; The Civil Rights Bill passed ; The Fenian Raid ; Trouble with Mexico and France ; Nebraska admitted ; Seceded States Re-admitted ; Fourteenth Amendment Adopted ; Indian War ; Treaty with China, 1868.

Henry's School History, pp. 162-163-164.

296. 1,000,000 men were destroyed on both sides ; and the money paid out for the war was more than \$4,000,000,000.

Id., p. 161.

297. U. S. Grant.

298. Building of the Pacific Railroad ; Adoption of the Fifteenth Amendment ; The Ninth Census Taken ; The Alabama Claims Settled ; The Burning of Chicago in 1871.

Model School History, pp. 274-275-276.

299. Great Fire in Boston, Nov. 9, 1872 ; The Modoc War ; The Great Financial Panic of 1873 ; 1873, the Year of Epidemics ; Troubles with Spain ; Visit of the Grand Duke Alexis of Russia. Troubles in Louisiana during 1873 and 1874 ; Visit of King Kalakaua of the Sandwich Islands, Pacific Ocean, 1875 ; Colorado Admitted, 1876 ; Deaths of Edward M. Stanton, Dec. 1869, Gen. Robt. E. Lee, Gen. George H. Thomas and Admiral Farragut in 1870, William H. Seward, Prof. Morse, Horace Greeley and Gen. Meade in 1872, Chief Justice Chase in 1873, Senator Chas. Sumner in 1874, Ex-President Andrew Johnson, John C. Breckinridge and Vice-President Henry Wilson in 1875 ; The Custar Slaughter 1876 ; The Centennial Exhibition at Philadelphia from May 10th to Nov. 10, 1876 ; Visit of Dom Pedro, Emperor of Brazil, 1876.

Henry's School History of the U. S., pp. 167-168-169-170.

300. Rutherford B. Hayes.

301. The Electoral Tribunal ; Troubles in Louisiana and South Carolina. *Id.*, p. 171.

ANSWERS TO MISCELLANEOUS QUESTIONS.

302. Washington, Jefferson, Madison, Monroe, Jackson and Grant.

303. Harrison, Taylor and Lincoln.

304. Madison was President during the War of 1812.

Polk was President during the Mexican War.

Lincoln was President during the Civil War.

305. John Adams and John Quincy Adams.

306. The old Republican party, as opposed to the Federalists, elected Jefferson and Madison.

307. Jackson, VanBuren, Polk, Pierce and Buchanan.

308. Lincoln, Grant and Hayes.

309. Washington and Monroe.

310. Benjamin Franklin, inventor of the Lightning-rod. 1752.

Eli Whitney, inventor of the Cotton-Gin. . . 1793.

Thomas Blanchard, inventor of the Tack-Machine. 1806.

Robert Fulton, inventor of the Steamboat. 1807.

Jethro Wood, inventor of the Modern Cast-iron Plow. 1819.

Ross Winans, inventor of the R. R. Passenger Car. 1828.

Samuel F. B. Morse, inventor of the Electric Telegraph. 1837.

Charles Goodyear, inventor of Vulcanized Rubber. 1839.

Elias Howe, inventor of the Sewing Machine.

. 1843.

Cyrus McCormick, inventor of the Harvesting Machine. 1845.

James Lyall, inventor of the Positive Motion Loom. 1868.

Jas. B. Eads, originator and constructor of the Great Steel Bridge over the Mississippi at St. Louis, 1867; and of the Jetties below New Orleans. . 1876.

Graham Bell, inventor of the Téléphone. . 1877.

Thomas A. Edison, inventor of the Talking Phonograph and Electric Light. 1877-78.

311. Benjamin Franklin.

312. Johnathan Edwards.

313. Joseph E. Worcester and Noah Webster.

314. Bowditch and Rittenhouse.

315. The Audubons and Agassiz.

316. Irving, Cooper, Brown, Hawthorne and Fenimore.

317. Sparks, Bancroft, Hildreth, Lossing, Prescott, Motley, Headley and Irving.

318. Halleck, Poe, Willis, Whittier, Lowell, Longfellow, Bryant, Freneau and Dana.

319. William Cullen Bryant, Horace Greeley, Jas. Gordon Bennett, Sr.

320. Powers, Greenough, Story, and Harriet Hosmer.

321. West, Copley, Page, Stuart, Trumbull and Sully.

322. Webster, Clay, Everett, Calhoun and Sumner.

323. The territory of the United States at the close of the Revolution, was bounded as follows:

On the north by the Great Lakes, on the east by the Atlantic Ocean, on the south by the Gulf of Mexico, and on the west by the Mississippi river; but from the region lying within this boundary, the Span-

ish province of Florida and that part of the present State of Louisiana which lies east of the Mississippi River, must be excluded, in defining the original domain of the U. S.

324. In 1787, the region north of the Ohio River was organized under the name of the *Northwest Territory*.

325. From this territory five states have been formed as follows: *Ohio*, in 1802; *Indiana*, in 1816; *Illinois*, in 1818; *Michigan*, in 1837; and *Wisconsin*, in 1848.

326. The region south of the Ohio was generally called the *Southwest Territory*.

327. From it have been formed the following States: *Kentucky*, in 1792; *Tennessee*, in 1796; *Mississippi*, in 1817; and *Alabama*, in 1819.

328. No.

329. No.

330. Maine was granted to Sir Ferdinand Gorges and John Mason by the Council of Plymouth in 1622. In 1677 it was purchased from the heirs of Gorges and Mason by Massachusetts. It was organized and admitted as a State in 1820.

331. Vermont was formed out of territory which had been claimed by New York and New Hampshire. Vermont was admitted into the Union in 1791, being the first State admitted, and making the number of States *fourteen*.

332. *Louisiana*, in 1812; *Missouri*, in 1821; *Arkansas*, in 1836; *Iowa*, in 1846; *Minnesota*, in 1858; *Oregon*, in 1859; *Kansas*, in 1861; *Nebraska*, in 1867; *Colorado*, in 1876; *Washington Territory* organized, in 1853; *Dakota Territory* organized, in 1861; *Idaho Territory* organized, in 1863; *Montana Territory* or-

ganized, in 1863: *Wyoming Territory* organized, in 1868; *Indian Territory*.

333. Florida was under Spanish rule until 1763, when it was ceded to Great Britain in exchange for Cuba, which the English had recently taken from Spain. In 1783 England ceded the province back to Spain, and in 1821 it was acquired by the United States for the sum of \$5,000,000.

334. The region bounded by latitude 42° , the Rocky Mountains, latitude 54° , and the Pacific Ocean, was long known as Oregon.

335. Captain Gray discovered its principal river in 1792, and Lewis and Clark explored the country in 1804.

336. Texas was at one time a part of Mexico, but becoming dissatisfied with the government, revolted in 1836, and set up an independent government. In 1845 Texas was annexed to the U. S.

337. By the name of Russian America.

338. The United States purchased Alaska of Russia, in 1867, for \$7,200,000.

339. "Let us remember that the real glory of a nation comes not from riches or power, or lands of vast extent, but from the love of right and truth."

QUESTIONS ON PHYSIOLOGY.

1. Illustrate the value of physiological knowledge.
2. Into what two bodies is the kingdom of nature divided ?
3. Define organic bodies.
4. What does this division include ?
5. Define inorganic bodies.
6. What does this division include ?
7. What is the distinction between organic and inorganic matter ?
8. In what conditions may we study organized matter ?
9. What science is derived from the first, and what from the second method ?
10. Give a full and complete definition of physiology.
11. Define anatomy.
12. How are anatomy and physiology divided ?
13. How are animal anatomy and physiology divided ?
14. Define Comparative anatomy and physiology.
15. To what are Human anatomy and physiology limited in their application ?
16. How are plants nourished ?
17. How are animals nourished ?
18. What do animals always possess ?

19. What functions are peculiar to animals alone?
20. What substances enter into the structure of the human body?
21. What can you say of the interchangeability of these substances?
22. How do these substances vary at different periods of life?
23. What effect does this have on the limbs in childhood and in old age?
24. What offices do the fluids of the system perform?
25. Name the fluids of the body.
26. How are the particles of matter arranged in solids?
27. Name the solids of the body.
28. Give the list of chemical elements in the human body.
29. Into what substances are these elements divided?
30. Name the metallic substances.
31. Name the non-metallic substances.
32. Give an arrangement of the parts of the body.
33. Define a fibre.
34. Define a fasciculus.
35. Define a tissue.
36. Define an organ.
37. What is the action of an organ called?
38. Give an example of an organ and its function.
39. Define an apparatus.
40. Define a system.
41. To what can every organ of the body be reduced?
42. What tissue is the primary form of all others?
43. How is the cellular tissue formed?

44. Where is the cellular tissue found ?
45. What is the chief use of this tissue ?
46. What different names have been given to the cellular tissue ?
47. Describe the osseous tissue.
48. Describe the muscular tissue.
49. Describe the nervous tissue.
50. Into what divisions may the human system be divided ?
51. How are the bones constructed ?
52. Give the principal uses of the bones.
53. Why do the bones have such different shapes ?
54. Of what are the bones composed ?
55. What are the different uses of the component parts of the bones ?
56. In what state do bones exist at first ?
57. How are they converted into bone ?
58. Which portion of the bones continues to increase and which to diminish to old age ?
59. What proportion of the bones is animal matter in children ?—in adults ?—in old age ?
60. What is the condition of the bones in children ?
61. At what age do the bones arrive to perfection ?
62. What is the condition of the bones in old age ?
63. What is the strength of the human bone ?
64. How many bones are there in the human body ?
65. Define ossification of the bones.
66. What is meant by *centres of ossification* ?
67. What is the only bone in the body which is completely *ossified*, or hardened at birth ?

68. What is the connection between any two bones called ?

69. How many joints are there in the human body ?

70. How many kinds of joints are there ?

71. What is the construction of a movable joint ?

72. Define cartilage.

73. What are the chief uses of cartilage ?

74. What is the membrane called that invests the bones ?

75. Into how many parts are the bones of the body divided ?

76. How are the bones of the head divided ?

77. Describe the bones of the skull.

78. Name the bones of the skull.

79. How are the bones of the skull united ?

80. What is the form of the skull ?

81. How many bones in the ear, and what is their use ?

82. How many bones in the face, and what is their use ?

83. Name the bones of the trunk.

84. How many bones in the spinal column ? How are they arranged ?

85. How are the bones of the spinal column divided ?

86. What is gained by the division of the spinal column into so many separate pieces ?

87. Of what does each vertebrae consist ?

88. How many ribs are there ?

89. What do the ribs form ?

90. Into how many and what classes are the ribs divided ?

91. Describe the curvatures of the ribs.

92. How, and to what are the ribs united ?

93. Describe the Sternum.

94. How many and what bones in the Pelvis ?

95. How many bones in the upper extremities ?

Name them.

96. How many bones in the lower extremities ?

Name them.

97. What is a muscle ?

98. How are the motions of the body performed ?

99. How is muscular motion exerted ?

100. What are characteristic properties of muscles ?

101. What does contractility imply ?

102. What does sensibility imply ?

103. Muscles are of how many kinds ?

104. How are the voluntary and involuntary muscles distinguished ?

105. What are the uses of the muscles ?

106. How many muscles are there ?

107. How are the muscles arranged ?

108. How are the muscles attached to the bones ?

109. What effect has exercise upon the muscles ?

110. Name the digestive organs.

111. Describe the mouth.

112. Name the Salivary Glands.

113. Describe the Pharynx.

114. Describe the Esophagus.

115. Describe the human stomach.

116. How is it placed ?

117. What is its average capacity in the adult ?

118. How many openings has it, and what are they called ?

119. How many coats does the stomach possess, and what are they ?

120. Describe the Lacteals.

121. Describe the Intestines.

122. Describe the Liver.

123. Describe the Pancreas.
124. What must our food contain?
125. Define food.
126. Of what does food consist?
127. What does organic food comprise?
128. What does inorganic food comprise?
129. What changes are wrought upon the food in the body?
130. What does digestion comprise?
131. What are the chief functions of the stomach?
132. What are the chief conditions favorable to stomach-digestion?
133. Name the digestive fluids.
134. What are the functions of the saliva?
135. What is the function of the gastric juice?
136. What are the functions of the bile?
137. What are the functions of the pancreatic juice?
138. What is the probable function of the intestinal juice?
139. Of what is chyme composed?
140. When is chyme changed to chyle?
141. What is the object of absorption?
142. How is absorption effected?
143. Explain absorption by blood vessels.
144. Explain absorption by lacteals.
145. Describe the lymphatic system.
146. How is the chyle finally made into blood?
147. What are the organs used for the circulation of the blood?
148. Describe the Heart.
149. Describe the Auricles.
150. Describe the Ventricles.
151. How do the cavities in the heart differ?

152. What is found between the auricle and ventricle in the right side of the heart?

153. How many valves in the left side, and their names?

154. What vessels proceed from the ventricles?

155. Describe their valves.

156. Give a complete description of the valves of the heart.

157. With what is the heart supplied?

158. Has the heart sensibility?

159. Name and describe the parts of the circulation of the blood.

160. What propels the blood through the body?

161. Describe the movements of the heart.

162. What are the veins?

163. Where do they commence?

164. Give the structure of the coats of the veins.

165. What are arteries?

166. Give their structure.

167. Describe the coats of the arteries.

168. What do the capillaries constitute?

169. For what are the capillaries remarkable?

170. What relation do the capillaries bear to the arteries and veins?

171. What important operations are performed in these vessels?

172. Give the elements of the blood.

173. Give the specific gravity and temperature of the blood.

174. How much blood in the body?

175. Give the use of the corpuscles of the blood.

176. State the difference between the red and white blood corpuscles.

177. Name the uses of the blood.

178. Name the respiratory organs.
179. What organs also aid in the respiratory process?
180. What is the structure of the lungs?
181. Describe the trachea.
182. Define an air-cell.
183. Of what use are the capillaries in the lungs?
184. What is the difference between arterial and venous blood?
185. What is respiration?
186. What is the object of respiration?
187. State the deductions from the experiments of Dr. Southwood Smith.
188. Compare the lungs and heart, giving three points in common and three points of difference.
189. What are the heat producing organs?
190. What is at present the most readily accepted theory of animal heat?
191. What is the temperature of the human body?
192. How is the body kept at its uniform temperature?
193. What is the essential organ of the voice in all animals?
194. Describe the larynx.
195. What are the vocal chords?
196. What are the essential conditions of the production of the human voice?
197. Name the secretory organs.
198. Describe the exhalants.
199. Describe the follicles.
200. Describe the glands.
201. What is secretion?
202. What is the skin?
203. Describe the two layers of the skin.

204. Name the general properties of the skin.
205. Give the uses of the skin.
206. Describe the hair and nails.
207. Describe the secretions of the skin.
208. Give the functions of the nervous system.
209. Give the divisions of the nervous system.
210. What does the cerebro-spinal system comprise?
211. What does the sympathetic system contain?
212. Describe the brain.
213. Give the divisions of the brain.
214. Describe the cerebrum and cerebellum.
215. Describe the spinal cord.
216. Describe the cerebro-spinal nerves.
217. Of what does the sympathetic system consist?
218. Of what is the nervous system composed?
219. What are the functions of the cerebrum?
220. What are the functions of the cerebellum?
221. What is the function of the *medulla oblongata*?
222. What are the functions of the spinal cord?
223. What are the functions of the sympathetic system?
224. With what are the nerves endowed?
225. Define the sensory organs.
226. Of what does the structure of the sense of touch consist?
227. Of what does the structure of the sense of taste consist?
228. Of what does the structure of the sense of smell consist?
229. Of what does the structure of the sense of sight consist?
230. Name the three coats of the eye-ball.
231. Of what is the optical apparatus made up?

232. Of what does the structure of the sense of hearing consist?

233. To what is the outer ear adapted?

234. Describe the middle ear.

235. Describe the inner ear.

ANSWERS TO QUESTIONS ON PHYSIOLOGY.

1. Precious lives are frequently lost through ignorance. Thousands squander in early years the strength which should have been kept for the work of real life. Habits are often formed which entail weakness and poverty upon manhood. Some silly feat of strength may produce an irreparable injury. A thoughtless hour of reading by twilight may impair the sight for life. A terrible accident may happen, and we might be able to save life if we "only knew what to do." Physiology gives us that knowledge which may save or lengthen life, repel or abate disease, and which regulates our bodily vigor.

Steele's Fourteen Weeks in Physiology, p. 15.

2. The kingdom of nature is divided into *organic* and *inorganic* bodies.

Cutter's Anatomy, Physiology and Hygiene, p. 13.

3. Organic bodies possess organs, on whose actions depend their growth and perfection.

Id., pp. 13 and 14.

4. This division includes animals and plants.

Id., p. 14.

5. Inorganic bodies are devoid of organs, or instruments of life.

Id., p. 14.

6. In this division are classed the earths, metals, and other minerals. *Id.*, p. 14.

7. The distinction between these two great classes of materials is based upon *form, coherence, growth, composition* and *derivation*.

First Lessons in Physiology, Hotze, p. 10.

8. There are two conditions in which we may study organized matter: namely, as living beings and as dead bodies.

Class-Book of Physiology, Comings, p. 10, Art. 6.

9. The science of *Physiology* is derived from the first method, and the science of *Anatomy* from the second.

Id., p. 10, Art. 7.

10. Human Physiology is the science which treats of the life of man—of the way in which he lives, and moves, and has his being. It teaches how man is begotten and born, how he attains maturity; and how he dies.

Hand-Book of Physiology, Kirk, p. 13.

11. Anatomy teaches the number, size, situation, and composition of the various parts, with their relations to each other.

Class-Book of Physiology, Comings, p. 10, Art. 9.

12. Anatomy and Physiology, in their most extended use, apply to all organized beings, though they are naturally divided into the several branches of *Vegetable Anatomy and Physiology, and Animal Anatomy and Physiology*.

Id., p. 10, Art. 10.

13. Animal Anatomy and Physiology are again divided into *Comparative Anatomy and Physiology, and Human Anatomy and Physiology*.

Id., p. 10, Art. 11.

14. Comparative Anatomy and Physiology are devoted to the lower orders of animals.

Id., p. 10, Art. 12.

15. Human Anatomy and Physiology are limited in their application to man.

Id., p. 10, Art. 13.

16. Plants are nourished by the inorganic elements found in the earth and air around them. The materials of their growth are received in the form of a liquid or a gas, already prepared for their use.

Id., p. 15, Art. 16.

17. Animals are nourished by the organic materials of vegetables or of other animals.

Id., p. 15, Art. 17.

18. Animals always possess a stomach or a digestive cavity, in which their food is received, to undergo a process of preparation before it can be absorbed into their tissues.

Id., p. 15, Art. 17.

19. Sensation and voluntary motion are peculiar to animals alone, and are therefore called animal functions.

Id., p. 15, Art. 18.

20. In the structure of the human body, there is a union of fluids and solids.

Anatomy, Physiology and Hygiene, Cutter, p. 17, Art. 17.

21. These substances are essentially the same, for the one is readily changed into the other. There is no fluid that does not contain solid matter in solution, and no solid matter that is destitute of fluid.

Id., p. 17, Art. 17.

22. In different individuals, and at different periods of life the proportion of fluids and solids varies.

In youth, the fluids are more abundant than in advanced life.

Id., p. 17, Art. 18.

23. For this reason, the limbs in childhood are soft and round, while in old age they assume a hard and wrinkled appearance.

Id., p. 17, Art. 17.

24. The fluids not only contain the materials from which every part of the body is formed, but they are the medium for conveying the waste, decayed particles of matter from the system.

Id., p. 17, Art. 19.

25. The fluids of the body are blood, chyle, lymph, saliva, gastric juice, pancreatic juice, synovia, mucus, and serum. Bile, sweat, and urine are excretions.

Physiology and Hygiene, Loughborough, p. 19, Ans. 28.

26. The particles of matter in solids are arranged variously; sometimes in *fibres*, (threads,) sometimes in *laminae*, (plates,) sometimes homogeneously, as in basement membranes.

Anatomy, Physiology and Hygiene, Cutter, p. 17, Art. 20.

27. The solids of the body are bones, teeth, cartilages, ligaments, muscles, nerves, vessels, viscera, membranes, skin, hair, and nails.

Physiology and Hygiene, Loughborough, p. 19, Ans. 27.

28. Of the sixty-five chemical elements or simple bodies known to exist, only fifteen have been found as normal constituents of the human body. The following is the list:

- | | |
|--------------|----------------|
| 1. Oxygen, | 9. Sodium, |
| 2. Hydrogen, | 10. Potassium, |
| 3. Carbon, | 11. Chlorine, |

- | | |
|----------------|----------------|
| 4. Nitrogen, | 12. Fluorine, |
| 5. Sulphur, | 13. Silicon, |
| 6. Phosphorus, | 14. Iron, |
| 7. Calcium, | 15. Manganese. |
| 8. Magnesium, | |

Hitchcock's Anatomy and Physiology, p. 6, Art. 10.

29. These elements are divided into *metallic* and *non-metallic* substances.

Anatomy, Physiology and Hygiene, Cutter, p. 25, Art. 43.

30. The metallic substances are *Potassium, Sodium, Calcium, Magnesium, Aluminum, Iron, Manganese, and Copper.*

Id., p. 25, Art. 43.

31. The non-metallic substances are *Oxygen, Hydrogen, Carbon, Nitrogen, Silicium, Phosphorus, Sulphur, Chlorine*, and a few others.

Id., p. 25, Art. 43.

32. The parts of the body are arranged into *Fibres, Fasciculi, Tissues, Organs, Apparatuses*, and *Systems.*

Id., p. 17, Art. 21.

33. A fibre is a thread of exceeding fineness. It is either cylindriform or flattened.

Id., p. 18, Art. 22.

34. A fasciculus is the term applied to several fibres united. Its general characteristics are the same as fibres.

Id., p. 18, Art. 23.

35. A tissue is a term applied to several different solids of the body.

Id., p. 18, Art. 24.

36. An organ is an instrument composed of tissues, and designed for action.

Class-Book of Physiology, Comings, p. 21, Art. 36.

37. Its action is called its function or use.

Id., p. 21, Art. 36.

38. The liver is an organ, and the secretion of bile its function.

Id., p. 21, Art. 36.

39. An apparatus consists of a number of different organs, arranged for the performance of some office. The teeth, mouth, stomach, intestines, etc., belong to the digestive apparatus.

Id., p. 21, Art. 37.

40. A system is a connected series of similiar parts, such as the muscular or the nervous system.

Id., p. 21, Art. 38.

41. However various all organs may appear in their structure and composition, it is now supposed that they can be reduced to a few tissues, as the *Cellular, Osseous, Muscular, Mucous, Nervous, etc.*

Anatomy, Physiology and Hygiene, Cutter, p. 29, Art.

29.

42. The *cellular* or *areolar* tissue is regarded as the primary form of all others.

Class-Book of Physiology, Comings, p. 22, Art. 40.

43. It is formed by the crossing or interlacing of minute fibres, interwoven in every direction, so as to form a web-like membrane with innumerable small spaces, which communicate with each other.

Id., p. 22, Art. 40.

44. The cellular tissue is found in every part of the system, except in compact portions of bone, teeth and cartilage.

Id., p. 22, Art. 40.

45. Its chief use seems to be to connect together organs and parts of organs which require a certain degree of motion on each other. It possesses great power of extensibility and elasticity.

Id., p. 22, Art. 41.

46. Various names have been assigned to the cellular membrane, corresponding to the different positions in which it is found. When inclosing those organs not exposed to the air, it receives the name of *serous* membrane, from a fluid secreted in it, called serum. In the lining of the respiratory passages and of the alimentary canal, it is called *mucous* membrane, from a secretion of mucous which is poured out from numerous glands beneath its surface. Where it forms a covering for the body, it is known as the *dermoid* membrane, or skin.

Id., pp. 22 and 23, Art. 42.

47. The osseous tissue, in composition and arrangement of matter, varies at different periods of life, and in different bones. In some instances, the bony matter is disposed in plates, while in other instances, the arrangement is cylindrical. Sometimes, the bony matter is dense and compact; again, it is spongy, or porous.

Anatomy, Physiology, and Hygiene, Cutter, p. 23, Art. 38.

48. The muscular tissue is composed of many fibres, that unite to form fasciculi, each of which is enclosed in a delicate layer of cellular tissue.

Id., p. 23, Art. 39.

49. The nervous tissue consists of soft, pulpy matter, enclosed in a sheath, called *neurilema*. This tissue consists of two substances. The one, of a pulpy character and gray color, is called *cin-e-ritious*, (ash-colored.) The other, of a fibrous character and white, is named *medullary*, (marrow-like.)

Id., p. 24, Art. 41.

50. Though the body is harmoniously united into a single system, it can be dissected and the parts de-

scribed separately. The following order is here adopted :

1. *Osteology*, or an account of the Bones or frame work of the system.

2. *Myology*, an account of the Muscles or the moving powers of the system.

3. *Splanchnology*, or the Nutritive Organs.

4. *Angiology*, an account of the Circulating System of the arteries and veins.

5. Pneumonology, or an account of the Respiratory, Vocal, and Calorific organs.

6. Ichorology, or the Lymphatic and Secreting System.

7. Neurology, or the history of the Nervous System, the vivifying power.

8. The Inlets of the soul, or the Senses.

Hitchcock's Anatomy and Physiology, pp. 29-30, Art. 79.

51. The bony structure is a dense, sub-fibrous basis, filled with minute cells, and traversed in all directions by branching and connected canals called Haversian, which give room to blood vessels and nerves.

Physiology and Hygiene Loughborough, p. 20.

52. The bones have three principal uses : 1. To protect the delicate organs ; 2. To serve as levers on which the muscles may act to produce motion ; and 3. To preserve the shape of the body.

Steele's Fourteen Weeks in Physiology, p. 19.

53. Bones differ in form according to the uses they subserve. For convenience in walking, some are long ; for strength and compactness, some are short and thick ; for covering a cavity, some are flat ; and for special purposes, some are irregular.

Id., p. 19.

54. The bones are composed of both animal and earthy matter.

Anatomy, Physiology and Hygiene, Cutter, p. 29, Art. 68.

55. The earthy portion of the bone gives them solidity and strength, while the animal part endows them with vitality.

Id., p. 29, Art. 68.

56. At first, bones exist in a state of cartilage.

Class-Book of Physiology, Comings, p. 197, Art. 405.

57. They are gradually converted into bones by a deposition of phosphate and carbonate of lime.

Id., p. 197, Art. 405.

58. The lime of the earthy portion of the bones is continually increasing till old age, while the animal portion is gradually diminishing.

Id., p. 197, Art. 406.

59. In children, the animal matter constitutes about one-half; in adults, one-fifth; and in old age, one-eighth of the whole composition.

Id., p. 197, Art. 406.

60. In children, the bones are soft and flexible, and admirably adapted to sustain the numerous falls and accidents, to which they are liable, without injury.

Id., p. 197, Art. 407.

61. The bones do not arrive at their perfect state until about the twentieth year.

Id., p. 197, Art. 408.

62. As the animal matter of the bones diminishes in old age, they become hard and brittle.

Id., p. 197, Art. 409.

63. Human bones, when used as levers, are twenty-two times as strong as sandstone, three and one-half times as strong as lead, nearly two and three-fourths

times as strong as elm and ash, and twice as strong as box, yew, and oak timber.

Hand-Book of Health, Loughborough, p. 21, Ans. 36.

64. There are two hundred and eight bones in the human body, beside the teeth. Some anatomists reckon more than this number, others less, for the reason that, at different periods of life, the number of pieces of which one bone is formed, varies.

Example.—The breast-bone, in infancy, has eight pieces; in youth, three; in old age, but one.

Cutter's Anatomy, Physiology and Hygiene, p. 32.

65. The process of ossification is the deposition of mineral matter in the cartilage.

First Lessons in Physiology, Hotze, p. 14.

66. The deposition of mineral matter in the cartilage takes place first at particular points, called the centres of ossification.

Id., p. 14.

67. It is that bone which is called the petrous, which contains the organs of hearing.

Hand Book of Health, Loughborough, p. 23.

68. A joint or articulation. It is by means of these joints that the various motions of the bones are easily made.

Id., p. 38.

69. Over two hundred, all perfectly adapted to their various positions and work.

Id., p. 38.

70.

Ans. No. 1. Three: fixed, or such as the joints of the skull and upper jaw, teeth and vomer; movable, such as the shoulder, hip, elbow, wrist, knee, ankle, carpus, and tarsus; intermediate, or such joints as those in the vertebral column.

Id., p. 41.

Ans. No. 2. There are several kinds of joints in the body, the most important of which are the hinge-joint at the elbow and knee, and the ball and socket-joint at the hip and shoulder.

Class-Book of Physiology, Comings, p. 203, Art. 419.

71. The opposing surfaces are coated by an elastic substance called cartilage, this is lubricated—oiled—by a fluid called synovia, which is secreted in an enclosed membrane or bag, called synovial.

Hand-Book of Health, Loughborough, p. 39.

72. Cartilage is a dense, firm substance nearly related to bone, but it lacks the mineral ingredients of bone, which makes it softer and more elastic.

First Lessons in Physiology, Hotze, p. 30.

73. The chief uses of cartilage are the following :

(1.) To yield smooth surfaces for easy friction in the joints; and to act as a cushion in shocks.

(2.) To fasten bones together without destroying freedom of movement, as between the vertebræ.

(3.) To serve as a firm yet not unyielding framework, as in the larynx and trachea.

(4.) To adapt itself to all purposes where firmness, toughness, elasticity and strength are required.

Id., p. 30.

74. The bones are closely covered with a very firm, whitish-yellow membrane, very smooth, this is called the periosteum. This membrane encloses the vessels which convey nutriment into the bones. It is to this periosteum that the ligaments and tendons are attached, as they can not fasten to the bone itself.

Hand-Book of Health, Loughborough, pp. 41 and 42.

75. They are divided, for convenience, into four parts :

1st. The bones of the Head.

- 2d. The bones of the Trunk.
- 3d. The bones of the Upper extremities.
- 4th. The bones of the Lower Extremities.

Anatomy, Physiology and Hygiene, Cutter, p. 32, Art. 74.

76. The bones of the head are divided into those of the *Skull, Ear and Face.*

Id., p. 32, Art. 75.

77. The skull is composed of eight bones. They are formed of two plates, or tablets of bony matter, united by a porous portion of bone.

Id., p. 32, Art. 76.

78. 1 Frontal, 1 Occipital, 2 Temporal, 1 Sphenoid, 2 Parietal, 1 Ethmoid.

Hitchcock's Anatomy and Physiology, p. 42, Art. 106.

79. The bones of the skull are united by ragged edges called Sutures. These are small and rough projections of bone which are largest at their extremities, and are made to fit into the edges of the opposite bone with great firmness.

Id., pp. 46 and 47.

80. The skull is convex externally, and at the base much thicker than at the top or sides.

Cutter's Anatomy, Physiology and Hygiene, p. 32, Art. 77.

81. In each ear are four very small bones. They aid in hearing.

Id., p. 34, Art. 80.

82. In the face are fourteen bones, some of which serve for the attachment of powerful muscles, which are more or less called into action in masticating food; others retain in place the soft parts of the face.

Id., p. 34, Art. 81.

83. The bones of the trunk include those of the

spinal column, (back bone,) the *thorax*, (chest,) and the *pelvis*, (basin.)

Human and Comparative Anatomy, Physiology and Hygiene, Cutter, p. 95.

84. The spinal column is composed of twenty-four bones. These are so arranged that a tube or canal is formed through the whole column.

Id., p. 95, Art. 230.

85. Seven of these are called *cervical* (neck) bones, twelve *dorsal* (back) bones, five *lumbar* (loin) bones.

Id., p. 95, Art. 231.

86. By the division of the spinal column into so large a number of separate bones, very great freedom of motion is allowed, with only a slight bend at any particular point.

Class-Book of Physiology, Comings, p. 205, Art. 430.

87. Each vertebrae consists of a body, which is situated in front of the spinal canal; and of seven processes or projections, which serve to form the spinal canal, and unite the vertebrae to each other by affording attachments for the muscles.

Id., p. 205, Art. 431.

88. There are twenty-four ribs—twelve on each side.

Brown's Physiology and Hygiene, p. 67, Art. 91.

89. The ribs form the side walls of the thorax.

Id., p. 67, Art. 91.

90. The ribs are divided into three classes. Seven are true ribs, three are false ribs, and two are floating ribs.

Id., p. 67.

91. Each rib has two curvatures—one which bends it around the chest horizontally, and another which gives it a downward curvature from the back forward.

Id., p. 67, Art. 91.

92. The ribs are united to the vertebrae by true joints, but forward, the true ribs join the breast-bone by flexible cartilages. The three false ribs unite to a cartilage which is common to all of them, and by means of which they are attached to the breast-bone. The floating ribs have no forward attachment.

Id., pp. 67 and 68, Art. 91.

93. The Sternum, or breast-bone, forms the front of the thorax. In infancy, it is in eight distinct pieces; in youth, three; and in old age, but one.

Id., p. 68, Art. 92.

94. The Pelvis, or lower division of the trunk, consists of four bones. The Sacrum, the Coccyx, and the Innominatum.

Id., p. 68.

95. The upper extremities contain sixty-four bones—the *Scapula*, (shoulder-blade;) the *Clavicle*, (collar-bone;) the *Humerus*, (first bone of the arm;) the *Ulna* and *Radius*, (bones of the fore-arm;) the *Carpus*, (wrist;) the *Metacarpus*, (palm of the hand;) and the *Phalanges*, (fingers and thumb.)

Cutter's Anatomy, Physiology and Hygiene, p. 39, Art. 96.

96. The lower extremities contain sixty bones—the *Femur*, (thigh-bone;) the *Patella*, (knee-pan;) the *Tibia*, (shin-bone;) the *Fibula*, (small bone of the leg;) the *Tarsus*, (instep;) the *Metatarsus*, (middle of the foot;) and the *Phalanges*, (toes.)

Id., p. 42, Art. 105.

97. A muscle is an aggregation of minute fibres, each of which is again composed of minute fibrils, held together by a delicate membrane.

First Lessons in Physiology, Hotze, p. 48.

98. All the motions in the animal body are per-

formed by muscles. Generally speaking, muscles are the organs of motion.

Id., p. 48.

99. Muscular motion is exerted by means of the contractility of muscles.

Id., p. 48.

100. Contractility and sensibility are characteristic properties of muscles.

Id., p. 48.

101. Contractility implies their power of contracting and relaxing.

Id., p. 48.

102. Sensibility implies their power of communicating impressions directly to the mind.

Id., p. 48.

103. Muscles are of two kinds: involuntary and voluntary.

Id., p. 48.

104. The voluntary and involuntary muscles are distinguished by their structure and mode of action.

Id., p. 48.

105. The uses of the muscles are:

- (1.) To produce motion;
- (2.) To hold the limbs in position;
- (3.) To protect the skeleton.

106. There are, in all, about five hundred muscles, each having its special use, and all working in exquisite harmony and perfection.

Fourteen Weeks in Physiology, Steele, p. 43.

107. The muscles are arranged in pairs, each with its antagonist, so that as they contract and expand alternately, the bone to which they are attached is moved to and fro.

Id., pp. 43 and 44.

108. The ends of the muscles are generally attached to the bone by strong, flexible, but inelastic tendons.

Id., p. 45.

109. The effect of exercise upon a muscle is very marked. By use it grows larger, and becomes hard, compact and darker-colored; by disuse it decreases in size, and becomes soft, flabby, and pale. *Id.*, p. 52.

110. The digestive organs are the *Mouth, Teeth, Salivary Glands, Pharynx, Oesophagus*, (gullet,) *Stomach, Intestines*, (bowels,) *Lacteals*, (milk, or chyle vessels,) *Thoracic Duct, Liver*, and the *Pancreas*, (sweetbread.)

Cutter's Anatomy, Physiology and Hygiene, p. 113, Art. 235.

111. The Mouth is an irregular cavity, which contains the instruments of mastication and the organs of taste. It is bounded in front by the lips; on each side by the internal surface of the cheeks; above, by the *hard palate* and teeth of the upper jaw; below, by the tongue and teeth of the lower jaw; behind, it is continuous with the pharynx, but is separated from it by a kind of movable curtain called the *soft palate*.

Id., pp. 113 and 114, Art. 236.

112. The Salivary Glands are six in number; three on each side of the jaw. They are called the *parotid*, the *sub-maxillary*, and the *sub-lingual*.

Id., p. 114, Art. 237.

113. The Pharynx is a short and somewhat irregular tubular cavity, into which the mouth opens behind, serving as a portion of the canal from the mouth to the stomach. It also communicates with both ears, with the nostrils and lungs, by passages which open directly into it.

Hitchcock's Anatomy and Physiology, pp. 156 and 157, Art. 292.

114. The Pharynx terminates in the Esophagus (meaning the passage for conveying the food.) This is a long and narrow tube, made up of two muscular coats, which terminates in the stomach by the cardiac orifice. It is smaller in size than the Pharynx, and contains a great number of minute glands, which secrete an oily fluid when the food is passing through it.

Id., pp. 157 and 158, Art. 293.

115. The Stomach in man is an oblong membranous bag.

Class-Book of Anatomy, Coming, p. 80, Art. 163.

116. It is placed obliquely across the abdomen, and just below the diaphragm.

Id., p. 80, Art. 163.

117. The average capacity in the adult is about one quart, though it may be distended to contain a much larger quantity, or be contracted to a very small size.

Id., p. 80.

118. It has two openings—one towards the heart, called the *cardiac orifice*, which receives the food from the Esophagus—and the other at the right or small end of the stomach, called the *pyloric orifice*, for the transmission of food to the small intestines.

Id., p. 80, Art. 163.

119. The stomach possesses three coats—the outer or *serous*, the middle or *muscular*, and the inner or *mucous*.

Id., p. 80, Art. 164.

120. The Lacteals are a class of vessels communicating with the mucous surface of the intestines and carry a milky fluid containing the nutritious part of the food in a dissolved state. The lacteals, in their passage through the mesentery, form clusters called mesenteric glands, in which the lacteal fluid under-

goes an important change, by which it acquires many of the properties of blood.

Brown's Physiology and Hygiene, pp. 27 and 28, Art.

34.

121. The Intestines, or alimentary canal, are divided into two parts—the *small* and *large*. The small intestine is about twenty-five feet in length and is divided into three portions, namely, the *Duodenum*, the *Fæjunum*, and the *Ileum*. The large intestine is about five feet in length, and is divided into three parts, namely, the *Coecum*, the *Colon*, and the *Rectum*.

Cutter's Anatomy, Physiology and Hygiene, p. 117, Art. 244.

122. The *Liver*, a gland appended to the alimentary canal, is the largest organ in the system, and weighs about four pounds. It is situated in the right side, below the diaphragm, and is composed of several lobes. Its upper surface is convex; its under concave. This organ is retained in its place by several ligaments. It performs the double office of separating impurities from the venous blood, and secreting a fluid (bile) necessary to chyliification.

Id., p. 122, Art. 254.

123. The *Pancreas* is a long, flattened gland, analogous to the salivary glands. It is about six inches in length, weighs three or four ounces, and is situated transversely across the posterior wall of the abdomen, behind the stomach.

Id., pp. 122 and 123, Art. 255.

124. The human body is composed largely of combinations of carbon, nitrogen, hydrogen and oxygen; hence, our food must contain these elements.

First Lessons in Physiology, Hotze, p. 126.

125. Food may be called that substance which,

when within the body, supplies material which renews lost tissue or supports some process of life.

Id., p. 126.

126. Food consists of organic and inorganic materials.

Id., p. 129.

127. Organic food comprises (1) nitrogenous substances; (2) fats; (3) compounds of carbon and hydrogen such as sugar or starch.

Id., p. 126.

128. Inorganic food comprises water, and alkalies such as salt and phosphates.

Id., p. 126.

129. The changes wrought upon the food in the body are (1) digestion, or the proper preparation of food in the alimentary canal; (2) assimilation, or the conversion of food into blood and tissues; (3) excretion, or the decomposition of food.

Id., p. 327.

130. Digestion comprises (1) mastication; (2) insalivation; (3) deglutition; (4) stomach-digestion; (5) digestion in the intestines.

Id., p. 127.

131. The chief functions of the stomach are (1) to mix the food into a pulp; (2) to dissolve the nitrogenous portion of the food by means of the gastric juice.

Id., p. 127.

132. The chief conditions favorable to stomach-digestion are (1) a temperature of 100 F., nearly; (2) continual motion of the walls of the stomach; (3) the removal of thoroughly digested portions of food from the stomach; (4) previous perfect mastication and insalivation of the food; (5) a moderate quantity of food; (6) regular intervals between meals; (7) no severe physical or mental exertion immediately before or af-

ter a meal; (8) a tranquil mind; (9) bodily health; (10) favorable weather.

Id., p. 127.

133. The digestive fluids are (1) the saliva; (2) the gastric juice; (3) the bile; (4) the pancreatic juice; (5) the intestinal juice.

Id., p. 128.

134. Functions of the saliva:

(1) Softening the food; (2) Converting starch into sugar; (3) mingling the food with air.

Id., p. 128.

135. Functions of the gastric juice: Dissolving albuminous and other substances.

Id., p. 128.

136. Functions of the bile:

(1) Absorbing waste material from the blood; (2) Dissolving fatty portions of food; (3) Stimulating the action of the intestines.

Id., p. 128.

137. Functions of the pancreatic juice:

(1) Digesting fats; (2) Dissolving albuminous substances.

Id., p. 128.

138. That of digesting albuminous matter.

Id., p. 128.

139. Chyme is composed of (1) albuminous matter; (2) fatty matter; (3) starch; (4) gastric juice.

Id., p. 129.

140. After its union with bile, chyme is usually called chyle.

Id., p. 129.

141. The object of absorption is (1) to supply the blood with fresh materials; (2) to remove waste particles.

Id., p. 129.

142. Absorption is effected by blood-vessels (capillaries) and by lacteals (or lymphatics.)

Id., p. 129.

143. Absorption by blood-vessels takes place chiefly in the stomach and the intestinal canal. These absorbed materials are conveyed to veins.

Id., p. 129.

144. Absorption by lacteals takes place in the small intestine by minute vessels called villi; these lead the absorbed chyle into the lacteals or lymphatic vessels, whence it is conveyed through the lymphatic glands to the thoracic duct, and thence thrown into veins.

Id., p. 129.

145. The lymphatic system of the body has its ramifications throughout the body similar to the system of blood-vessels, from which it differs in this, that its fluid is lymph, and flows in only one direction.

Id., p. 129.

146. By the aid of respiration, the chyle is finally made into blood.

Id., p. 129.

147. The organs composing the Circulatory system are the Heart, Arteries, Veins, and Capillaries.

Hitchcock's Anatomy and Physiology, p. 201, Art. 365.

148. The Heart, or central engine of circulation, is located in the thorax or chest, resting by its lower surface on the diaphragm, and somewhat to the left of the middle line of the body. It is of a conical form, made of animal muscular fibre, the fibers crossing themselves in at least three directions. The heart is a double organ, one side being called the arterial and the other the venous, or left and right hearts, since the former receives and propels the pure or arterial blood, while the

latter circulates venous blood. Again, each of the two sides or hearts are divided into an auricle and a ventricle. Each of these four cavities will ordinarily contain about three fluid ounces, making the whole heart to contain nearly a pint.

Id., pp. 201, and 202.

149. The Auricles differ in muscularity from the ventricles. Their walls are thinner, and of a bluish color. These cavities are a kind of reservoir, designed to contain the blood arriving by the veins.

Cutter's Anatomy, Physiology and Hygiene, p. 156, Art. 336.

150. The Ventricles not only have their walls thicker than the auricles, but they differ in their internal structure. From the interior of these cavities arise fleshy columns, called *columnae carneae*. The walls of the left ventricle are thicker and stronger than those of the right.

Id., pp. 156 and 157.

151. The cavities in the right side of the heart are triangular in shape; those of the left, oval.

Id., p. 157, Art. 338.

152. Between the auricle and ventricle in the right side of the heart, there are three folds, or doublings, of thin, triangular membrane, called the *tricuspid* valves.

Id., p. 157, Art. 338.

153. Between the auricle and ventricle in the left side, there are two valves called the *mitral*.

Id., p. 157, Art. 338.

154. The right ventricle of the heart gives rise to the *Pulmonary* artery; the left ventricle, to a large artery called the *Aorta*.

Id., p. 157, Art. 339.

155. At the commencement of each of these arteries there are three folds of membrane, and from their shape, they are called *semilunar* valves.

Id., p. 157.

156. The valves are muscular fibers arranged in such a form that the blood can pass through them; but the contracting of the ventricle presses the blood back against the valve and closes it so that the blood cannot pass back again. The same contraction of the muscles of the ventricle forces the valves open out into the arteries, and the pressure of the blood in the artery closes the valve again.

Hand-Book of Health, Loughborough, p. 64.

157. The heart is supplied with arteries and veins, which ramify between its muscular fibres, through which its *nutrient* blood passes. It has, likewise, a few lymphatics, and many small nervous filaments from the sympathetic system of nerves.

Cutter's Anatomy, Physiology and Hygiene, p. 157, Art. 340.

158. The heart, in its natural state, exhibits but slight indications of sensibility, and although nearly destitute of the sensation of touch, it is yet, however, instantly affected by every painful bodily excitement, or strong mental emotions.

Id., p. 157, Art. 340.

159. The circulation consists of two parts: 1. Great or systemic circulation; 2. Lesser or pulmonary circulation. Commencing, we will suppose, with the left ventricle the blood is impelled through the semi-lunar valves into the aorta, and along its successive branches to the microscopic net-work of the capillaries, which ramify through all the tissues of the body. In the capillaries, the blood parts with its nutritive elements, be-

comes venous, and is collected into the small veins, and flows through their converging branches into the main trunks, the venæ cavæ, and finally into the right auricle. From the right auricle it is emptied through the tricuspid valves into the right ventricle. This completes the great or systemic circulation.

From the right ventricle the blood is impelled through the semi-lunar valves into the pulmonary artery, and along its branches to the capillaries of the lungs, to be exposed to the action of the air. From the pulmonary capillaries the blood enters in converging streams the pulmonary veins, which carry it to the left auricle, and this completes the lesser or pulmonary circulation. It is then emptied through the bicuspid valves into the left ventricle, where it started on its course.

Class-Book of Physiology, Comings, p. 41, Arts. 75-76.

160. The force which propels the blood through the body lies in the substance of the heart.

Its assistants in this are : 1st, the elastic walls of the arteries; 2d, the muscular pressure upon some of the veins; 3d, the contraction and expansion of the chest in breathing.

First Lessons in Physiology, Hotze, p. 71, Art. 23.

161. The movements of the heart consist of an alternate contraction and expansion. The former is called the systole, and the latter the diastole. During the diastole the blood flows into the heart, to be expelled by the systole. The alternation of these movements constitutes the beating of the heart.

Fourteen Weeks in Physiology, Steele, p. 110.

162. The veins are the vessels which return the blood to the auricles of the heart after it has been circulated by the arteries through the various tissues of the body.

They are thinner and more delicate in structure than the arteries, so that when emptied of their blood, they become flattened and collapsed.

Anatomy, Physiology and Hygiene, Cutter, pp. 160-161, Art. 346.

163. The veins commence by minute radicles in the capillaries, which are everywhere distributed through the textures of the body, and coalesce to constitute larger and larger branches, till they terminate in the large trunks which convey the dark-colored blood directly to the heart.

Id., p. 161, Art. 346.

164. The external, or cellular coat of the veins, is dense and firm, resembling the cellular tunic of the arteries. The middle coat is fibrous, like that of the arteries, but extremely thin. The internal coat is serous and also similar to that of the arteries. It is continuous with the lining membrane of the heart at one extremity, and with the lining membrane of the capillaries at the other.

Id., p. 161, Art. 348.

165. The arteries are the cylindrical tubes that convey the blood from the heart to every part of the system.

Id., p. 158, Art. 341.

166. They are dense in structure, and preserve, for the most part, the cylindrical form, when emptied of their blood, which is their condition after death.

Id., p. 158, Art. 341.

167. The arteries are composed of three coats. The external, or cellular coat, is firm and strong; the middle, or fibrous coat, is composed of yellowish fibres. This coat is elastic, fragile, and thicker than the external coat. The internal coat is a thin, serous membrane,

which lines the interior of the artery, and gives it the smooth polish which that surface presents.

Id., p. 158, Art. 342.

168. The capillaries constitute a microscopic network, and are so distributed through every part of the body as to render it impossible to introduce the smallest needle beneath the skin, without wounding several of these fine vessels.

Id., p. 163, Art. 350.

169. The capillaries are remarkable for the uniformity of diameter, and for the constant divisions and communications which take place between them.

Id., p. 163, Art. 350.

170. The capillaries inosculate, on the one hand, with the terminal extremity of the arteries, and on the other, with the commencement of the veins. They establish the communication between the termination of the arteries and the beginning of the veins.

Id., p. 163, Art. 351.

171. The important operations of secretion and the conversion of the nutrient materials of the blood into bone, muscle, etc., are performed in these vessels.

Id., p. 163, Art. 351.

172. Animal blood after standing for some time, contains 1st, red and white corpuscles; 2d, animal fibrine; 3d, water; and 4th, albumen. The first two form the clot, the remaining two the serum. The blood contains dissolved within it three gases: Carbonic acid, oxygen, and a small quantity of nitrogen. 100 volumes contain about 50 volumes of these gases collectively.

First Lessons in Physiology, Hotze, p. 70, Arts. 11-18.

173. The specific gravity of blood = 1, very nearly; its temperature = 100° F., nearly.

Id., p. 70, Art. 12.

174. The living body contains a quantity of blood of about one-tenth of its own weight.

Id., p. 70, Art. 13.

175.

Ans. No. 1. The use of the red corpuscles seems to be to convey oxygen from the lungs to all parts of the body.

Id., p. 70, Art. 17.

Ans. No. 2. The function of the red corpuscles seems to be to convey oxygen to the tissues, and as this is the agent which is continually promoting the change or waste of the system, these corpuscles seem to be the great agents for disassimilating the tissues and the blood itself. The colorless or white corpuscles seem to be the agents by which the repair of the body is effected, since they are greatly augmented in number when there is a large wound to be healed, or when there is a great amount of internal or external inflammation.

Hitchcock's Anatomy and Physiology, p. 228, Art. 403.

176. The red blood corpuscles differ from the white in this, that they are smaller in size but larger in number, and of a less changeable nature.

First Lessons in Physiology, Hotze, p. 70, Art. 16.

177. The following are four uses of the blood:

1. It feeds the different parts of the body, which depend upon it for their maintenance.

2. It provides the entire body with warmth and moisture.

3. It carries oxygen to the tissues which need this gas.

4. It gathers refuse matters throughout the body, and conveys them to places whence they may be discharged.

Id., p. 71, Art. 19.

178. The respiratory organs are the Lungs [lights,] the Trachea, (wind-pipe,) the Bronchia, (sub-divisions of the trachea,) and the Air-Vesicles, (air-cells at the extremities of the bronchia.)

Cutter's Anatomy, Physiology and Hygiene, p. 209, Art. 464.

179. The Diaphragm, (mid-riff,) Ribs, and several Muscles, also aid in the respiratory process.

Id., p. 209, Art. 464.

180. They are two conical-shaped organs, occupying the cavity of the chest on each side of the heart, from which they are separated by a membranous partition, the mediastinum. Their color is pinkish gray, marked with black. Each lung is divided into two lobes by a long, deep fissure. In the right lung the upper lobe is subdivided by a second fissure. The air cells in each lobe communicate with each other, but not with those of another lobe. The lungs rest on the convex surface of the diaphragm. The root of each lung comprises the pulmonary artery and veins, and bronchial tubes, with the bronchial vessels and pulmonary plexuses of nerves. They are comprised of ramifications of the bronchial tubes, terminating in intercellular passages and air cells. It is supposed that there are not less than one hundred million air cells in the lungs. The mucous membrane of the lungs presents an extent of surface of twenty-one thousand square inches; supposed to be greater than the entire surface of the skin of the body. All the air tubes, vessels, and nerves of the lungs are closely knit together into one general texture, by a delicate cellular tissue, and the whole mass, on each side, is enveloped in the serous membrane as an external coat.

Hand-Book of Health, Loughborough, pp. 148 and 194.

181. The trachea is a cartilaginous tube about one inch in diameter, made up of from fifteen to twenty cartilaginous rings, commencing at a point nearly opposite the fifth cervical vertebra, and extending as low as the second dorsal, or top of the sternum, where it divides into two bronchi extending to each lung. These segments of the trachea are not perfect rings, since they complete only about five-sixths of a circle, the remaining sixth consisting of smooth or involuntary muscular fiber.

Hitchcock's Anatomy, Physiology and Hygiene, pp. 248, and 249, Art. 441.

182. An air cell is a thin and elastic, funnel-shaped membrane of about $\frac{1}{40}$ of an inch in diameter.

Hotze's First Lessons in Physiology, p. 84, Art. 5.

183. The capillaries in the lungs serve to expose the blood to the action of the air. This is done by (1) spreading it over a large surface, (2) spreading it in thin streams, (3) protecting it by merely a delicate cover.

Id., p. 84, Art. 6.

184. The main difference between arterial and venous blood, is that the latter contains less oxygen but more carbonic acid gas than the former.

Id., p. 84, Art. 1.

185. Respiration, or breathing, is that process by which air is taken into the lungs and expelled from them.

Cutter's Anatomy, Physiology and Hygiene, p. 217, Art. 475.

186. The object of respiration is, 1st. To supply the system with oxygen, which is essential to the generation of animal heat; 2nd. To convert the chyle into blood. This is done by the oxygen of the inspired air; 3rd. To relieve the organs of the body of the

principal elements (carbon and hydrogen) that compose the old and useless particles of matter.

Id., p. 217, *Art.* 475.

187.

"1st. The volume of air ordinarily present in the lungs is about twelve pints.

2nd. The volume of air received by the lungs at an ordinary inspiration is one pint.

3rd. The volume of air expelled from the lungs at an ordinary expiration is a little less than one pint.

4th. Of the volume of air received by the lungs at one inspiration, only one-fourth part is decomposed at one action of the heart.

5th. The quantity of blood that flows to the lungs, to be acted upon by the air at one action of the heart, is two ounces, and this is acted upon in less than one second of time.

6th. The quantity of blood in the whole body of the human adult, is twenty-five pounds avoirdupois or twenty pints.

7th. In the mutual action that takes place between the air and blood, every twenty-four hours, the air loses thirty-seven ounces of oxygen, and the blood fourteen ounces of carbon."

Id., p. 223, *Art.* 485.

188. Three points in common:

1. Both operate by expansion and contraction.
2. Both are involuntary organs; that is, on ordinary occasions they act independently of the will.
3. Both are indispensable to the maintenance of life.

Three points of difference:

1. The lungs contain air; the heart contains blood.

2. The lungs contain bronchial tubes, air-cells and blood-vessels; the heart has two parts, called the right and left side, each part being again divided into auricle and ventricle.

3. The lungs purify the blood; the heart propels the blood through the body.

First Lessons in Physiology, Hotze, p. 86, Art. 16.

189. The organs which produce animal heat are essentially those employed in the act of breathing and the circulation of the blood.

Hitchcock's Anatomy, Physiology and Hygiene, p. 256. Art. 455.

190. The theory which now is most readily accepted makes the function of animal heat to be a chemico-vital one, or a chemical change (oxydization) dependent upon vital energy, being nearly analogous to the burning of a candle or the combustion of wood and coal in the stove.

Id., pp. 256 and 257, Art. 455.

191. The temperature of the human system is 98° F., and this it is invariably found to be in all climates and seasons when the individual is in perfect health.

Id., p. 257, Art. 457.

192. The manner in which the body is kept at the uniform temperature of 98°, is a subject of deep interest. It is partly accomplished by radiation, since the body is ordinarily warmer than the air about it, and also partly by inhaling the cool air into the air passages.

Id., p. 258, Art. 458.

193. The Larynx in all animals is the essential organ for the production of the voice.

Id., p. 259, Art. 459.

194. A cartilaginous tube, imperfectly conical, the base directed upwards, made up of distinct portions or segments slightly movable upon one another, and

with a certain portion of the channel lengthened into a narrow and elongated opening, constitutes a larynx.

Id., p. 259, *Art.* 459.

195. Across the middle of the larynx is a transverse partition, formed by two folds of the lining mucous membrane, stretching from either side, but not quite meeting in the middle line. They thus leave, in the middle line, a chink or slit, running from the front to the back, called the *glottis*. The two edges of this slit are not round and flabby, but sharp and, so to speak, clean cut; they are also strengthened by a quantity of elastic tissue, the fibres of which are disposed lengthways in them. These sharp free edges of the *glottis* are the so-called *vocal chords* or vocal ligaments.

Physiology and Hygiene, Huxley and Youmans, p. 205, *Art.* 223.

196. The essential conditions of the production of the human voice are: *a.* The existence of the so-called *vocal chords*. *b.* The parallelism of the edges of these chords, without which they will not vibrate in such a manner as to give out sound. *c.* A certain degree of lightness of the vocal chords, without which they will not vibrate quickly enough to produce sound. *d.* The passage of a current of air between the parallel edges of the vocal chords of sufficient power to set the chords vibrating.

Id., p. 204, *Art.* 222.

197. The secretory organs are the Exhalants, Follicles, and the Glands.

Cutter's Anatomy, Physiology and Hygiene, p. 192, *Art.* 415.

198. The exhalants were supposed to be terminations of arteries or capillaries. The external exha-

lants terminate on the skin and mucous membranes; the internal in the cellular and medullary tissues.

Id., p. 192, Art. 416.

199. The follicles are small bags, or sacs, situated in the true skin and mucous membrane. The pores seen on the skin are the outlets of these bodies.

Id., p. 192, Art. 417.

200. The glands are soft, fleshy organs, and as various in their structure, as the secretions which it is their function to produce. Each gland is composed of many small lobules united in a compact and distinct mass, that communicates by a small duct with the principal outlet, or duct of the organ. Every gland is supplied with arteries, veins, lymphatics, and nerves.

Id., p. 193, Art. 418.

201. Secretion is one of the most obscure and mysterious functions of the animal economy. "It is that process by which various substances are separated from the blood, either with or without experiencing any change during their separation."

Id., pp. 193 and 194.

202. The skin is the external covering of the body. It consists of two layers—the outside skin or the epidermis, and the inner one or dermis.

First Lessons in Physiology, Hotze, p. 51.

203. The epidermis serves to protect the sensitive lower skin or dermis, and to moderate the evaporation of fluid from the blood vessels.

The dermis serves to invest the excretion glands; on its surface are the sensitive touch-corpuscles. The dermis is the deeper portion of the skin; it is denser, more elastic and more tender than the epidermis. When cut it bleeds very freely, while the latter does not bleed at all.

Id., pp. 51–52.

204. The general properties of the skin are toughness, flexibility and elasticity.

Id., p. 52.

205. Owing to its toughness, it serves as the protecting cover of the body ; in virtue of its flexibility, it shields the inner parts from violence ; and, on account of its elasticity, it yields readily to the movements of the body. It is also the principal organ of touch.

Id., p. 52.

206. The hair and nails are peculiar forms of the epidermis. The former is composed of horny scales and cells, closely packed together.

Id., p. 52.

207. The secretion of the skin consists of two different fluids, one oily, the other watery. The oily one is secreted mostly in the scalp and the face, where the skin is largely supplied with hair. The other is called perspiration or sweat, the two terms being habitually taken synonymously, although there is this difference between them : perspiration is an insensible excretion, which evaporates on the skin ; sweat is a sensible secretion, composed of the same fluid as the other, but appearing on the skin in the form of drops.

Id., pp. 52-53.

208. Functions of the nervous system :

1. It connects the different parts and organs of the body into an organic unit or whole.
2. It animates or governs all movements of the muscles, whether voluntary or not.
3. It regulates the temperature, nutrition and secretion of the body.
4. It controls the processes of the organic life of the body.

5. It receives impressions which are generated by its terminal branches.

6. It conveys impressions to different portions of the body.

7. It can generate influences which no other organ or system can produce, such as sight, smell or taste. By means of this function, it puts the body in direct communication with the outer world.

Id., p. 142.

209. The nervous system, although a continuous substance, is conveniently subdivided into two systems: 1, the cerebro-spinal system, and 2, the sympathetic system.

Id., p. 132.

210. The cerebro-spinal system comprises the cerebro-spinal axis, that is, the brain and the spinal cord, together with the cerebral and spinal nerves which emanate from this axis.

Id., p. 132.

211. The sympathetic system contains the chain of sympathetic ganglia and the nerves which they give off.

Id., pp. 132-133.

212. The brain is a very soft substance, forming in man the enlarged upper terminus of the spinal cord. It is encased in the cavity of the cranium, which it fills, and from which it is difficult to be extracted entire. The brain substance of man generally varies in weight from 40 to 60 ounces, and it is universally admitted that, as a rule, the quantity of brain substance corresponds to the intellectual powers of the individual, although it is believed that the quality of this substance also plays an important part. The brain consists of cells and fibres which are rendered visible only by a good microscope.

Id., p. 133.

213. The brain is divided into the large brain or cerebrum, the small brain or cerebellum—only one-eighth as large as the former—and the enlarged spinal cord or medulla oblongata.

Id., p. 133.

214. The cerebrum and cerebellum consist each of two hemispheres, one on the right, the other on the left side. The surface of the cerebrum is covered with a great many foldings and windings or convolutions, irregular in form and direction; these are separated from each other by deep furrows. The cerebellum also has convolutions, but they are of a more regular form and direction.

Id., p. 134.

215. The spinal cord is the downward continuation of the medulla oblongata. It is a soft substance contained in a bony cavity, formed by the vertebral column or back-bone. It extends nearly to the sacrum; it is furrowed like the brain into two lateral, symmetric parts. Between these two parts—that is, in the centre of the cord and through its entire length—runs a fine canal, which originates in a point between the cerebellum and the medulla oblongata.

Id., p. 134.

216. The cerebro-spinal nerves originate in both the brain and the spinal cord, whence they ramify and spread all over the body. They have the form of fibres and cells.

Id., p. 134.

217. The sympathetic system consists, like the brain, of cells and fibres. It is situated in front and at the sides of the spinal column; its ganglia or nerve cells are connected with one another, and with the spinal nerves by nerve cords.

Id., p. 135.

218. The nervous system appears to be composed of two distinct substances—the gray and the white. In the cerebrum and cerebellum the white substance is contained within the gray; in the medulla oblongata and spinal cord the gray substance is enclosed in the white. The nervous fibres and tubes are white; the cells are gray.

Id., p. 136.

219. The main functions of the cerebrum seem to be the manifestation of intellectual powers and the will.

Id., p. 143.

220. The functions of the cerebellum seem to consist in the regulation of muscular movements.

Id., p. 143.

221. The function of the medulla oblongata is to generate and control the motions of respiration and deglutition.

Id., p. 143.

222. The functions of the spinal cord are (1) to transmit sensitive impressions from its outer nerves to the brain; (2) to transmit the manifestations of the will from the brain to the spinal motor nerves; (3) to originate nerve-force independently of the brain whenever a stimulus is applied.

Id., p. 143.

223. The functions of the sympathetic system seem to be, to control the action of the alimentary canal, the glands, the blood-vessels and the heart.

Id., p. 143.

224. Nerves are generally endowed with motor and sensory properties, and others which serve the purpose of generating sensations.

Id., p. 143.

225. Sensory organs are tools, or instruments, cap-

able (1) of receiving impressions from the outer world and (2) of making us conscious of those impressions. They are merely the peculiarly shaped termination of a particular nerve. They are five in number, viz: that of sight, hearing, touch, taste and smell.

Id., pp. 144 and 145.

226. The structure of the sense of touch consists in nerves which are spread out under the epidermis, and within the dermis or cutis.

Id., p. 146.

227. The structure of the sense of taste consists of papillae spread over the tongue and portions of the cavity of the mouth. These papillae are the terminations of certain nerves coming from the brain.

Id., p. 148.

228. The structure of the sense of smell consists in olfactory nerves, which are spread over the interior surface of the nasal cavity.

Id., p. 148.

229. The structure of the sense of sight consists in two eye-balls, each of which comprises (1) three distinct coats, and (2) an optical apparatus.

Id., p. 163.

230. The three coats of the eye-ball are:

- (1) The sclerotic coat ;
- (2) The choroid coat ;
- (3) The retina.

Id., p. 163.

231. The optical apparatus is made up of :

- 1. The Cornea ; 2. The aqueous humor ; 3. The crystalline lens ; 4. The vitreous humor.

Id., p. 164.

232. The structure of the sense of hearing consists of two ears, each of which comprises (1) the outer ear, (2) the middle ear, (3) the inner ear or labyrinth.

Id., p. 164.

233. The outer ear is peculiarly adapted to collect and transmit waves of sound.

Id., p. 165.

234. The middle ear consists of (1) the external tube and (2) the drum or tympanum. These are separated from each other by the tympanic membrane. The drum contains three small bones: the hammer, the anvil and the stapes.

Id., p. 165.

235. The labyrinth or inner ear consists of the vestibule, three semi-circular canals, and the cochlea. The labyrinth is filled with liquids, in which are floating the terminal fibres and filaments of the auditory nerve.

Id., p. 165.

QUESTIONS ON THEORY AND PRACTICE OF TEACHING.

1. What does the Theory and Practice of Teaching embrace?
2. Of what does school economy treat?
3. Define methods of instruction.
4. What do you understand by methods of culture?
5. What could be treated of under the history of education?
6. What should be taken into consideration in making preparations for the school?
7. What should be taken into consideration in selecting a site for a school-house?
8. What do you consider to be the requisites of good school-grounds?
9. State the objects of graded schools.
10. What branches of knowledge should be taught in primary schools?
11. Give a list of grammar school studies.
12. What branches should be embraced in the high school course?
13. Upon what should the size of a school-house depend?
14. What is the best form for school houses?
15. How should a school-house be warmed?
16. How should a school-room be ventilated?

17. With what furniture should a school-house be provided?

18. With what apparatus should schools be supplied?

19. Of what use are school-records?

20. What is meant by the organization of a school?

21. Give an outline of work preliminary to the organization of a school.

22. What advantages will be gained by forming acquaintances of parents and pupils before the opening of the school?

23. What should be the chief business of the teacher on the first day of school?

24. Give directions that should be observed closely during the first day of school.

25. How should a school be opened?

26. How many and what grades should there be in the public schools?

27. What are the advantages of a programme?

28. What are the employments of a school?

29. What are the objects of study?

30. By what principles should incentives to study be tested?

31. Name incentives to study which are of doubtful propriety.

32. What are proper incentives to study?

33. What are the objects of education?

34. Since the recitation must embrace the objects of education, what may be considered the ends of the recitation?

35. How should the recitation be conducted?

36. What might be considered requisites for the recitation?

37. What preparation should the teacher make for the recitation?
38. Why is it necessary to take exercise?
39. Define school government.
40. Under what heads may school government be embraced?
41. Define ethics.
42. Define school-ethics.
43. Name the important factors in the school.
44. What may be considered as some of the most important qualifications of the teacher?
45. What may be considered as the school-duties of pupils?
46. Define discipline.
47. Into how many and what species may school government be resolved?
48. What may be considered as proper penalties?
49. What may be considered as improper penalties?
50. What things should the teacher avoid?
51. What things should every teacher perform?
52. What is education?
53. What is teaching?
54. What is learning?
55. In what divisions are the faculties of the mind comprised?
56. What faculty comes first in the natural order of development?
57. How is the intellect developed?
58. What are the sources of knowledge?
59. What is that knowledge called which man derives through the senses?
60. What does this knowledge include?
61. What is that knowledge called which is derived through Reason?

62. What does this knowledge include?
63. What should a system of education have for its object?
64. What conditions does teaching presuppose?
65. What does education do for the individual?
66. What does education do for a people?
67. What are some of the most common evils of our schools?
68. What should form the foundation for a system of teaching?
69. Give a classification of the elements of Pedagogics.
70. What other names are sometimes applied to these elements?
71. Into what divisions is physical education divided?
72. Define diatetics.
73. Define gymnastics.
74. What is the special direction which the activity of apprehending intelligence takes?
75. When is the perceptive faculty most active?
76. When is the conceptive faculty most active?
77. When is the thinking faculty most active?
78. From the foregoing what epochs may be distinguished?
79. What appears in the act of learning?
80. Give the names of some of the most important educational reformers.

ANSWERS TO QUESTIONS ON THEORY AND PRACTICE OF TEACHING.

1. All that relates to the Theory of Teaching or to its Practice may be embraced under the four following heads:—1. School Economy. 2. Methods of Instruction. 3. Methods of Culture. 4. The History of Education.

Wickersham's School Economy, p. 5.

2. Under the head of School Economy could be considered the preparation for, and the organization of, the school, and the conditions of its efficient workings.

Id., p. 5.

3. Under the head of Methods of Instruction an investigation could be made into the nature of knowledge and the methods of imparting it.

Id., p. 5.

4. Under the head of Methods of Culture, the physical and mental constitution of man could be examined, and an effort could be made to arrive at the best means of developing and strengthening it.

Id., p. 5.

5. Under the head of History of Education, there could be related the success or the failure, the causes and effects, of the various educational systems and efforts which have characterized the past.

Id., p. 5.

6. In making preparation for the School, the following particulars must be regarded:

- | | |
|--------------------|----------------------|
| 1. School-Sites. | 5. School-Houses. |
| 2. School-Grounds. | 6. School-Furniture. |
| 3. School-Grades. | 7. School-Apparatus. |
| 4. School-Studies. | 8. School-Records. |

Id., p. 1.

7. Several things must be taken into consideration in selecting a site for a school-house. The most important of them are:—

1. Convenience of access.
2. Suitability of the grounds and surroundings.
3. Healthiness of the neighborhood.
4. Beauty of the location.

Id., p. 2.

8.

1. Grounds about a school-house should be thoroughly drained, so as to ensure dryness in all seasons.

2. They should be leveled and sodded.
3. They should be planted with trees for shade and with hardy shrubs for ornament.
4. They should be provided with a house for fuel and separate closets for the accommodation of the pupils of both sexes.

5. The grounds should be well supplied with water.

6. They should be enclosed by a neat fence.

Sypher's Art of Teaching School, p. 49.

9. Some of the most prominent objects the friends of education have had in view, in advocating a system of graded schools, are the following: they economize the labor of instruction; lessen its cost; make teaching more effective; promote good order in school;

prompt the ambition of pupils; provide instruction in the higher branches of learning; and remove the necessity of children's leaving home to obtain a good education.

Wickersham's School Economy, p. 24.

10. Children in Primary Schools ought to be taught the names and the sounds of the letters of the Alphabet; and they ought also to receive careful instruction in Pronouncing, Spelling, Defining, Elementary Reading, Oral Composition, Drawing and Writing and Elementary Arithmetic.

Id., pp. 28 and 29.

11. A list of Grammar School studies must embrace Spelling, Defining, Reading, Composition, Elements of Grammar, Geography, History of the United States, Drawing and Writing, Arithmetic, Oral and Written, Vocal Music.

Id., pp. 29 and 30.

12. The principal studies embraced in a High School Course are included in the following classification;—Language, Inductive Sciences, Deductive Sciences, and History.

Id., p. 30.

13. The size of a school-house should mainly depend upon the number of pupils it is intended to accommodate. A house designed for an ungraded school to be taught by a single teacher should not contain less than nine hundred square feet. A house built to accommodate fifty to eighty pupils and provide them with a recitation-room, should contain not less than fifteen hundred square feet; and one to accommodate from eighty to one hundred and twenty pupils, with two recitation-rooms, should have an area of something like two thousand square feet.

Id., pp. 33 and 34.

14. The best form for school-houses in rural districts is rectangular, the door entering at the south end, and the north end being without windows. The ceiling must be from twelve to sixteen feet high, as it will add to the beauty of the room and to the health and comfort of its occupants.

Id., p. 34.

15. The common mode in which our school-houses are heated is very objectionable. If a stove *must* be placed in the room, it should be surrounded with a tin casing made to extend from the floor to about one foot above the top of the stove. There should be a door in the casing for putting in fuel; and a trunk for the conveyance of fresh air should start outside of the building, run under the floor, and communicate directly with the stove.

Id., pp. 40 and 41.

16. All the windows of a school-room should be hung with pulleys, in order that they may be easily raised or lowered. If windows and doors are skilfully used, a tolerably good degree of ventilation can be secured.

Id., p. 41.

17. 1. The furniture of the school house should be of the most approved and convenient pattern. 2. The desks should be so arranged as to enable all pupils to pass to and from their seats without creating confusion in any part of the room. 3. Every school should be provided with a library of reference-books. The most comprehensive English dictionary, a geographical gazetteer, a biographical dictionary, a popular encyclopedia, sets of historical and physiological charts and outline maps should be considered indispensable articles in the furnishing of every school house. 4. The teacher's desk should be so constructed as to be

well adapted to the uses for which it is intended. A plain business office desk, with drawers, shelves, closets and book-rack, is perhaps the most convenient form.

Sypher's Art of Teaching School, pp. 48 and 49.

18. Among the articles of apparatus which should be found in all schools are the following:—a set of cards for teaching the Alphabet, Pronunciation, Spelling, and Elementary Reading, with a stand to hang them upon; several sets of Letter Blocks, and a Chart of Elementary Sounds; Writing-Charts; Cards for Drawing, both large and small, to suit classes or individuals, and a set of objects for Drawing; a Numeral Frame, and sets of Square and Cube Root Blocks; a Globe, a set of Outline Maps, and a Tellurian; Charts of History; a case of Minerals and Curiosities, a large collection of objects for Object Lessons, some pictures and engravings intended for the same purpose; a Thermometer.

Wickersham's School Economy, pp. 46 and 47.

19. To aid the teacher in his work; to give information to parents and school officers; to furnish educational statistics; to exert a beneficial influence upon the pupils.

Id., pp. 57, 58 and 59.

20. School organization is a system of arrangement designed to secure constant employment, efficient instruction and moral control. It aims at providing the means of instructing and educating the greatest number in the most efficient manner, and by the most economical expenditure of time and money.

De Graff's School-Room Guide, p. 390.

21. 1. The young teacher should consider well his adaptation to a particular school before engaging it.
2. He should know something of its peculiar difficul-

ties, then weigh the question of his fitness to cope with them. 3. The teacher should make known his views and plans of teaching and management to school officers while negotiating. 4. The contract with school officers should always be in writing; it should bind the officers to the support of the teacher in all just measures. 5. The teacher should visit the district and make acquaintances of parents before opening of school.

The Teacher's Hand-Book, Phelps, pp. 78 and 79.

22. Such visits will convince the people that the teacher takes an interest in his work and desires to do it well. 2. The teacher will be able to ascertain how many children from each family will be likely to attend school, what their ages and advancements are, and what books they have studied. 3. From the children the teacher can learn who were in the several classes, how many classes there were in the school, how the school was organized, and many other matters of detail that will assist him in making up a complete schedule of classes and studies, ready for use on the opening day.

Art of Teaching School, Sypher, pp. 74 and 75.

23. The chief business of the teacher on the first day is to win the respect of the pupils, and to establish confidence between them and himself.

Id., p. 76.

24.

1. Furnish something interesting for every pupil to do, from the commencement, all day long.

2. Forestall disorder by establishing order at every movement.

3. You will more readily interest the younger

classes by engaging with the older classes first, than by pursuing the opposite course.

Holbrook's School Management, p. 167.

25. 1. School officers should be present and introduce teacher the first day; this gives appearance of moral support to teacher, and produces salutary effect upon pupils. 2. Teacher should make brief, familiar and appropriate address to pupils; should explain his relations to them, and theirs to him. 3. He should strive to make the first impressions pleasant. 4. Special preparation for first day indispensable; go to work with a carefully prepared plan. Leave nothing to the impulse of the moment. 5. Open school with some appropriate and pleasing general exercise. This may be a familiar song; some vocal exercise, or a responsive reading of the Scriptures.

The Teacher's Hand-Book, Phelps, p. 79.

26. There should not be more than four grades in the public schools. The primer and first reader should constitute the D grade; the second reader, the C grade; the third reader, the B grade; and the fourth reader, the A grade. The number of classes in each grade should not exceed four, and, by close classification, they need not exceed this number.

DeGraff's School-Room Guide, p. 393.

27. Advantages of a programme :—

1. It lessens the labor of teaching.
2. It makes teaching more effective.
3. It promotes good order.
4. It cultivates systematic habits.
5. It promotes the ambition of pupils.

Id., p. 393.

28. The employments of the school may readily be arranged into three classes, as follows:

- I. Study.
- II. Recitation.
- III. Exercise.

Wickersham's School Economy, p. 119.

29. Knowledge, discipline, aspiration and efficiency. *Id., p. 120.*

30.

1. Incentives to study ought to be continuous in their influences.

2. Incentives to study ought to arise from the nature of the subject, and the circumstances connected with learning it.

Id., p. 126.

31. The principal incentives to study about the use of which a difference of opinion exists are—Prizes; Merit-Marks; Emulation; Fear of Punishment; Shame; and Ridicule.

Id., p. 127.

32.

1. The Approbation of the Teacher.
 2. The Approbation of the Parents and Friends of the Pupil.
 3. The Approbation of Society.
 4. The Attainment of an honorable Position in the School.

- 5. The Pleasure of overcoming Difficulties.
- 6. The Gratification of Curiosity.
- 7. The Desire of Knowledge.
- 8. The Hope of Success in Life.
- 9. The Enjoyment of pure ideal Creations.
- 10. The Duty of Self-Perfection.
- 11. The Satisfaction of doing Right.
- 12. The Prospect of Heavenly Reward.

Id., p. 149.

33. 1. The development of the faculties; 2. The acquisition of knowledge; 3. Its wise application to the uses of life.

Phelps's Teacher's Hand-Book, p. 85.

34. The ends of the recitation may be summarily stated to be :

(a.) To develop the power of quick and accurate perception, of close observation, and generally, of clear and exact thought.

(b.) Another object of the recitation is to cultivate the power of concise and ready expression.

(c.) A third object of the recitation is to determine the extent and accuracy of the learner's attainments.

(d.) Another object of the recitation, to increase the attainments of the class, to add to the knowledge that its members have acquired in their study hours.

(e.) An object of the recitation to determine the pupils' habits and methods of study, and to correct whatever is faulty either in manner or matter.

(f.) The moral objects of the recitation are to cultivate sentiments of justice, kindness, forbearance, and courtesy.

Id., pp. 85-86-87.

35. How to conduct a recitation :

1. A brief reproduction of the preceding lesson.
2. A brief review of the preceding lesson.
3. Rehearsal and critical examination of the daily lesson.
4. Recapitulation of the daily lesson.
5. Adequate preparation for the advanced lesson.

DeGraff's School-Room Guide, p. 339.

36.

1. A live, intelligent teacher.

2. Recitation seats.
3. An abundance of blackboard.
4. Apparatus,—such as globes, charts, maps, numerical frame, measures, etc.
5. Reference books.
6. Call bell.
7. Proper ventilation.
8. Equal temperature.

Id., p. 343.

37.

1. General preparation, always special if possible.
2. Should have a knowledge of mental and moral philosophy.
3. Should have an abstract of each day's work.
4. Should know how to "use" books, but not abuse them.

Id., p. 343.

38.

1. Exercise is necessary to health.
2. Exercise is necessary to strength.
3. Exercise is necessary to study.

Wickersham's School Economy, pp. 216 and 217.

39. School government is the proper ordering of both the organic and individual action in the schools, so as to secure in the pupils the best possible development of the mind and discipline of the heart.

Fewell's School Government, p. 23.

40. School government may be embraced under the following heads :

1. School-Ethics.
2. School-Retributions.
3. School-Legislation.
4. School-Administration.

Wickersham's School Economy, p. 230.

✓ 41. Ethics is the science which treats of human rights and duties.

Id., p. 231.

42. School-ethics relates to the rights and duties of persons connected with the school.

Id., p. 231.

43.

1. The teacher.
2. The general school-officers.
3. The communities that found and support schools.

4. The pupils.

Id., pp. 231 and 232.

44. First, common sense; second, knowledge of the branches; third, teaching power; fourth, governing power; fifth, love of the work.

Holbrook's School Management, p. 1.

45. The school-duties of pupils may be comprehended under the following classification:

- 1st. Duties to themselves.
- 2d. Duties to one another.
- 3d. Duties to the school-property.
- 4th. Duties to the teacher.
- 5th. Duties to the general school-officers.
- 6th. Duties to the school as a whole.
- 7th. Duties to visitors at the school.
- 8th. Duties to society.
- 9th. Duties to God.

Wickersham's School Economy, p. 232.

46. The term Discipline is often taken in a broad sense, including all the appliances, studies and exercises of the student's life. In its more contracted sense, it is applied to the *correction* of particular errors and faults.

Holbrook's School Management, p. 194.

47. School government is practically of three general species:

- 1st. That of *force*.
- 2d. That of *authority*; and
- 3d. That of *love*.

Jewell's School Government, p. 283.

48.

1. Privation of recitations.
2. Privation of recess.
3. Private reproof.
4. Reproof before a class, or before the school.
5. Privation of position in a class.
6. Daily and weekly reports.
7. Notes to parents.
8. Suspension.
9. Expulsion.
10. Corporal punishment.
11. Withholding friendship.
12. Special penalties.

Holbrook's School Management, pp. 211, 212, 213, 214, 215 and 216.

49.

1. Threatening individual or general punishment.
2. Scolding at individuals or the school.
3. Asking for excuses either written or oral.
4. Whipping as it is generally practiced, i. e., as the common punishment for every kind of offense.
5. Compulsory study, inflicted as a punishment.

6. Any form of physical torture or mental distress beyond the absolute demand of the case, any sudden or violent action, as throwing rulers or slapping the head, are not only highly improper but dangerously criminal.

7. Any punishment whatever beyond the school-yard, or, indeed, any punishment in the school-room, for acts committed beyond the school-yard, I consider entirely improper and badly impolitic.

Id., pp. 218 and 219.

50.

1. Guard against prejudice on entering a school.

2. Do not allow pupils to direct their own studies.

3. Do not attempt to teach too many things.

4. Never attend to extraneous business in school hours.

5. Avoid making excuses to visitors for the defects of your school.

6. Never compare one child with another.

7. Avoid wounding the sensibilities of a dull child.

8. Never lose your patience when parents unreasonably interfere with your plans.

9. Never make the study of the Bible a punishment.

10. Ride no "hobbies" in teaching.

Page's Theory and Practice of Teaching, pp. 292, 294, 296, 297, 300, 301 and 302.

51.

1. Convince your scholars by your conduct that you are their friend.

2. Take special care that the school-house and its appendages are kept in good order.

3. Teach both by precept and by practice, the use of the decimal or American currency.

4. When scholars do wrong, it is sometimes best to withhold immediate reproof, but to describe a similar case in general instruction.

5. Be accurate.

6. Cultivate a cheerful countenance.

7. Study to acquire the art of aptly illustrating a difficult subject.

8. Take advantage of unusual occurrences to make a moral or religious impression.

Id., pp. 307, 309, 311, 312, 314, 315, 318 and 322.

52. I call that education which embraces the culture of the whole man, with all his faculties—subjecting his senses, his understanding, and his passions to reason, to conscience, and to the evangelical laws of the Christian revelation.

De Fellenberg.

53. To teach is to communicate knowledge—to give instruction.

Rev. Wm. Bates.

54. To learn is to acquire knowledge—to be instructed.

Id.

55. The faculties of the mind are comprised in three general divisions—the Intellect, the Sensibility and the Will.

Sypher's Art of Teaching School, p. 14.

56. The first in order is the development of the intellect.

Id., p. 15.

57. The intellect is developed by the acquisition of knowledge.

Id., p. 15.

58. The sources of knowledge are:—the Senses and the Reason.

Id., p. 18.

59. The knowledge which man derives through the Senses is called empirical knowledge—the knowledge of experience.

Id., p. 18.

60. This includes all that we know through the Senses—seeing, hearing, touching, tasting, smelling—and through emotional experiences.

Id., p. 18.

61. Knowledge of which reason is the source is called rational knowledge.

Id., p. 18.

62. Ideas of space, of time, of distance, the truths evolved by mathematical calculations, ideas of the absolute and the infinite, are attained through processes of reasoning, and cannot be reached by experience.

Id., p. 18.

63. A system of education should have for its object the guidance of the faculties of the mind in their efforts to reap in the harvest-fields of nature, so that they may first gather that which is first required, that they may store away that which is of most use, to the end that the mind may be strengthened by labor, that the act of receiving may increase the capacity to receive, and that what requires greater strength and longer continued efforts to overcome and possess, may be left to be gathered at that period of life, when the requisite strength and power of endurance shall have been gained through a judicious system of exercise.

Id., p. 22.

64. Teaching presupposes three conditions: First, a degree of knowledge and capacity on the part of the pupil; second, a degree of knowledge and skill on the part of the teacher; and third, knowledge to be acquired.

Id., p. 23.

65. (a) Education makes men more industrious; (b) more trustworthy; (c) more active and systematic; (d) more cheerful; (e) more far-sighted; (f) more economical, as producers and preservers of property.

The School and the School Master, p. 152.

66. (a) It tends to make a people more orderly, and to substitute reflection for passion; (b) to predispose them to respect lawful authority; (c) to indispose them to submit to oppression; (d) to render political revolutions gradual and bloodless; (e) to qualify men for the exercise of more and more political power; (f) to make refinement and civilization universal.

Id., pp. 152 and 153.

67. (a) Want of interest on the part of parents and others; (b) frequent change of teachers; (c) excessive multiplication of school districts; (d) diversity of class-books; (e) teachers not qualified; (f) defective supervision.

Id., p. 197.

68. The object-matter which must form the foundation for a system of teaching, will comprehend: 1st. The nature of the thing to be operated upon, or *educational capabilities*; 2d. The nature of the instrumentalities which may be used in operating upon it, or *educational means*; 3d. The manner of performing the operation, or *educational methods*.

Wickersham's Methods of Instruction, p. 34.

69. The classification of the special elements of Pedagogics is very simple; (1) the Physical, (2) the Intellectual, (3) the Practical.

Rosenkranz's Pedagogics as a System, p. 27.

70. We sometimes apply to these the words Orthobiotics; Didactics, and Pragmatics.

Id., p. 27.

71. Physical education, as it concerns the repairing, the motor, or the nervous activities, is divided into [1] Diatetics, [2] Gymnastics, [3] Sexual Education.

Id., p. 29.

72. Diatetics is the art of sustaining the normal repair of the organism.

Id., p. 29.

73. Gymnastics is the art of systematic training of the muscular system.

Id., p. 31.

74. The special direction which the activity of apprehending intelligence takes are: [1] Perception, [2] Conception, [3] Thinking.

Id., p. 37.

75. The Perceptive faculty is most active in the infant.

Id., p. 37.

76. The Conceptive faculty is most active in the child.

Id., p. 37.

77. The Thinking faculty is most active in the youth.

Id., p. 38.

78. Thus we may distinguish an intuitive, an imaginative, and a logical epoch.

Id., p. 38.

79. In the act of learning there appears (1) a mechanical element, (2) a dynamic element, and (3) one in which the dynamic again mechanically strengthens itself.

Id., p. 57.

80. Ascham, Montaigne, Ratich, Milton, Comenius, Locke, Rosseau, Basedow, Pestalozzi, Jacotot and Herbert Spencer.

Essays on Educational Reformers, Quick, pp. 11, 12, 13, 14, 15, 16, 17, 18 and 19.

QUESTIONS ON MATHEMATICAL GEOGRAPHY.

1. Define Geography.
2. How is Geography divided ?
3. Define Mathematical Geography.
4. What is the form of the Earth ?
5. Give proofs of its rotundity.
6. What is the diameter of a sphere ?
7. What is the circumference of a sphere ?
8. Give the equatorial diameter of the earth.
9. Give its polar diameter.
10. Give its circumference.
11. What is its extent of surface ?
12. What its solid contents in miles ?
13. What is its weight ?
14. What is its specific gravity ?
15. What is the horizon ?
16. What points of the horizon are called Cardinal Points ?
17. What are the Semi-cardinal Points ?
18. What position does the earth occupy in the universe ?
19. How many and what bodies compose the Solar System ?
20. What relative position does the earth occupy in the Solar System ?

21. What is the distance [of the earth from the sun?

22. Has the Sun any other motion than its movement through space?

23. To what theory has this uniformity of direction of the movements of the planets and Sun given rise?

24. What is the axis of the Earth?

25. What are the poles?

26. Which is the North pole?

27. What is the motion of the Earth on its axis called?

28. Give proofs of the earth's rotation.

29. Explain how falling bodies prove it.

30. Having established that the earth rotates, what considerations indicate that it rotates from west to east?

31. What is the exact time of a rotation?

32. What is the velocity of rotation?

33. Where is the velocity least?

34. To what phenomenon does the rotation of the earth give rise?

35. What is the great circle called which separates the dark side of the earth from the light?

36. What is the Earth's motion around the Sun called?

37. What is the exact time of a complete revolution?

38. Define a sidereal year.

39. Define a tropical year.

40. Which value is taken for the length of the civil year?

41. What is the extent of the earth's orbit?

42. At what season is the earth nearest the sun?

43. Explain why it is nearer at one time than at another.
44. When is the earth at its perihelion?
45. When at its aphelion?
46. At what velocity does the earth move in its orbit?
47. What governs the velocity of the different planets?
48. What causes the continued revolution of the earth and other planets?
49. How are *centrifugal* and *centripetal* forces now regarded?
50. What gives the earth's orbit its elliptical shape?
51. What produces the change of seasons?
52. Define circle as used in Geography.
53. How may the circles of the earth be divided?
54. Define Great and Small Circles.
55. Define circles of Position, or Measurement.
56. Define Climatic Circles.
57. Name the Circles of Position.
58. Name the Climatic Circles.
59. What is the number of degrees in a circle?
60. Define Latitude.
61. What is the length of a degree of Latitude?
62. Are degrees of Latitude of equal length on all parts of the globe?
63. On what is Latitude measured?
64. What is the basis of the Geographic mile?
65. Define Longitude.
66. Are degrees of Longitude all of equal length?
67. On what is Longitude measured?
68. What is the greatest extent of Longitude?
69. What places have no longitude?
70. What is the greatest extent of Latitude?

71. What places have no Latitude ?
72. What are prime meridians?
73. Where are these usually located ?
74. What computations of Longitude and time may be made, having difference of Longitude or time between places given?
75. Explain why.
76. Give a diagram showing the time at the same moment at different places, marked at quadrant's distances.
77. Define quadrant.
78. What are the Tropics?
79. Where are they located?
80. What are the Polar Circles?
81. Where are they located ?
82. Why are these circles thus located?
83. Into what Zones do the Climatic Circles divide the earth?
84. Locate the Torrid Zone.
85. Locate the Temperates.
86. Locate the Frigids.
87. What is the width of the Torrid Zone?
88. What is the width of the Temperates?
89. What is the width of the Frigids ?
90. What is the Ecliptic?
91. What is the degree of inclination of the earth's axis to the plane of the Ecliptic?
92. Under what circumstances would there have been no change of seasons?
93. In what case would the change of seasons have been greater than it now is ?
94. What are the Equinoxes?
95. How many and what are they called ?
96. On what days of the year do they occur?

97. What are the Equinoctial Points?
98. What are the solstices ?
99. How many, and what are they called ?
100. On what days of the year do they occur ?
101. What are the Solstitial Points?
102. Why is the Ecliptic so called?
103. On what does the relative length of the day and night depend ?

ANSWERS TO QUESTIONS ON MATHEMATICAL GEOGRAPHY.

1. Geography (from the Greek *geographia*—derived from $\gamma\eta$, the earth, and $\varphi\omicron\acute{\alpha}\phi\epsilon\iota\nu$, to write) is the science that treats of the earth. In its widest sense, it embraces all that we know of the globe, its form, magnitude, and motions. The successive changes it has undergone, its present condition, its structure, products and inhabitants.

Cornell's Physical Geography, p. 1.

2. Geography is divided into three branches; Mathematical, Political and Physical.

Id., p. 1.

3. Mathematical Geography is the term given to certain facts of astronomy and mathematics which are used in geography. The astronomical part treats of the earth as a planet of the solar system,—with its size, motions, etc.; the mathematical part teaches us how to represent the earth's surface on maps and globes.

Swinton's Complete Course in Geog., p. 1.

4. The shape of the earth is that of a sphere, or globe, slightly flattened at the Poles; in exact language, an Oblate Spheroid.

Id., p. 2.

5.

1. The Continual Circumnavigation of the earth. This shows that the earth is round from East to West at least.

Id., p. 2.

II. Appearance of Approaching Objects. If the earth were flat, as soon as an object appeared on the horizon, we would see the upper and lower parts at the same time ; but if it were curved, the top parts would first be seen. Now, when a ship is coming into port, we see first the topmasts, then the sails, and finally the hull ; hence the earth must be curved ; and, since the appearance is the same, no matter from what direction the ship is approaching, we infer that the earth is evenly curved, or spherical.

III. The Circular Shape of the Horizon. The horizon, or the line that limits our view when nothing intervenes, is always a circle.

IV. The Shape of the Earth's shadow. The shadow which the earth casts on the moon during an eclipse of the moon, is always circular, and as only spherical bodies in all positions can cast such shadows, we infer that the earth is spherical.

V. Measurement. The shape of the earth has been accurately ascertained by calculations based on the measurement of an arc of a meridian. We therefore not only know that it is spheroidal, but also the exact amount of its oblateness.

VI. Great Circle of Illumination. The shape of the great circle of illumination, or the line separating the portion of the surface lighted by the sun's rays from that in the shadow, is another evidence of the rotundity of our earth.

Houston's Physical Geography, p. 11.

6. A diameter of a sphere is any straight line drawn through the centre from surface to surface.

Harper's School Geography, p. 2.

7. The circumference of a sphere is the greatest distance around it.

Id., p. 2.

8. 7,925.65 miles.

Guyot's Physical Geog., p. 6.

9. 7,899.17 miles.

Id., p. 6.

10. 24,899 miles.

Id., p. 6.

11. 196,900,278 square miles.

Id., p. 6.

12. 260,000,000,000 cubic miles.

Id., p. 6.

13. 5,852,000,000,000,000 of tons, a weight of which our minds can form no conception.

Id., p. 6.

14. The specific gravity of the globe is found to be about $5\frac{2}{3}$; that is, it would require $5\frac{2}{3}$ globes of water of the same size, to balance the weight of the earth.

Id., p. 6.

15. The horizon is that circle upon which the earth and sky appear to meet.

Harper's School Geog., p. 2.

16. North, South, East and West, are called cardinal points.

Id., p. 2.

17. North-east, North-west, South-east and South-west, are called semi-cardinal points.

Eclectic Series, No. 3, p. 6.

18. The earth is one of a group of small non-luminous bodies which revolve around the sun, accompany him through space, and reflect his light.

Guyot's Physical Geog., p. 2.

19. The solar system comprises the sun, eight large bodies called planets, and as far as is now known about one hundred and seventy-five smaller bodies called planetoids, or asteroids, besides numerous comets and

meteors. Some of the planets have bodies called moons or satellites moving around them. These also belong to the solar system.

Houston's Physical Geog., p. 8.

20. The earth belongs to the group nearest the sun and is third from the sun in position.

Guyot's Physical Geog., p. 3.

21. Nearly 92,000,000 of miles.

22. The sun, all the primary planets, and their satellites so far as known, rotate from west to east.

23. To a theory by Laplace called the nebular hypothesis, which assumes that originally all the material of which the solar system is composed, was scattered throughout space in the form of very tenuous matter called nebula. It being granted that this matter began to accumulate around a centre, and that a motion of rotation was acquired, it can be shown on strict mechanical principles, that a system resembling our own might be evolved.

Houston's Physical Geography, p. 15.

24. The central line of rotary motion is called the axis of rotation.

Guyot's Physical Geog., p. 3.

25. The extremities of the axis are called the poles.

Id., p. 3.

26. The North Pole is the pole nearest the North Star.

Swinton's Complete Course in Geography, p. 3.

27. It is called its rotation.

Houston's Physical Geog., p. 14.

28.

I. A direct proof of the earth's rotation is derived from observations of a pendulum. If a heavy ball be suspended by a flexible wire from a fixed point, and

the pendulum thus formed be made to vibrate, its vibrations will all be performed in the same plane. If instead of being suspended from a fixed point, we give to the point of support a slow motion of rotation around a vertical axis, the plane of vibration will still remain unchanged. Suppose then a heavy ball to be suspended by a wire from a fixed point directly over the pole of the earth and made to vibrate; these vibrations will continue to be made in the same invariable plane. But the earth meanwhile turns round at the rate of 15° per hour; and since the observer is unconscious of his own motion of rotation, it results that the plane of vibration of the pendulum appears to revolve at the same rate in the opposite direction.

II. A second proof of the earth's rotation is derived from the motion of falling bodies.

Loomis's Treatise on Astronomy, pp. 32-34.

29. If the earth had no rotation upon an axis, a heavy body let fall from any elevation would descend in the direction of a vertical line. But if the earth rotates on an axis, then since the top of a tower describes a larger circle than the base, its easterly motion must be more rapid than the base, and if a ball be dropped from the top of a tower, since it already has the easterly motion which belongs to the top of the tower, it will retain this easterly motion during its descent, and its deviation to the east of the vertical line will be nearly equal to the excess of the motion of the top of the tower above that of the base during the fall.

Id., p. 34.

30. The sun and stars appear to move in an opposite direction, from east to west, or as it is commonly expressed "rise in the east" and "set in the west."

This apparent motion of the sun and stars is caused in reality by the rotation of the earth.

Warren's New Phys. Geog., p. 8.

31. The time of a complete rotation is 23 hours, 56 minutes, 4.09 seconds.

Houston's Physical Geog., p. 14.

32. The velocity of rotation at any point on the equator is about 1,042 miles per hour.

Id., p. 14.

33. At points distant from the equator the velocity diminishes, until at the poles it is nothing.

Id., p. 14.

34. The alternation of day and night is owing to the earth's rotation which brings each point of its surface from darkness to light, and from light to darkness.

Cornell's Phys. Geog., p. 6.

35. The great circle which separates the dark side of the earth from the light side is called the Circle of Illumination.

Id., p. 6.

36. Its revolution.

Houston's Phys., p. 15.

37. The exact time of a complete revolution is 365 days, 6 hours, 9 minutes, 9.6 seconds.

Houston's Phys. Geog. p. 15.

38. The exact time of a revolution is called a sidereal year.

Id., p. 15.

39. The tropical year, or the time from one March equinox to the next, is 365 days, 5 hours, 48 minutes, 49.7 seconds.

Id., p. 15.

40. The latter value is the one generally given for the length of the year, being nearly $365\frac{1}{4}$ days.

Id., p. 15.

41. 577,000,000 miles.

Id., p. 15.

42. About January 1st.

Id., p. 15.

43. The orbit of the earth is an ellipse. The sun is in one of the foci and as this is not in the centre of the orbit, the earth must be nearer to the sun at some parts of its revolution than at others.

Id., p. 15.

44. When the earth is in that part of its orbit which is nearest to the sun, it is said to be at its perihelion.

Id., p. 15.

45. When in that part of its orbit farthest from the sun, it is at its aphelion.

Id., p. 15.

46. Its mean velocity may be taken as equal to about 19 miles a second, which is nearly sixty times faster than the speed of a cannon-ball.

Id., p. 15.

47. While the circumference of the orbits of the planets increase with their distance from the sun, their velocity at the same time diminishes, and the time of revolution, or length of year, increases correspondingly.

Guyot's Phys. Geog., p. 5.

48. The earth's movement through space is caused solely by a *projectile force* imparted to it when it first began its separate existence—probably when first separated from the nebulous sun. From its inertia it would move for an indefinite time in one direction, but, by the sun's attraction it is constantly changing its direction by falling toward the sun; and thus is produced the curved shape of its orbit.

Houston's Phys. Geog., p. 10.

49. Centrifugal and Centripetal forces, as such have no real existence, save in the projectile force and in the attraction of the sun. It is inertia alone that keeps the earth moving and the sun's attraction that modifies the motion. The earth has no power whatever, in itself, to move either towards or from the sun. An entire abandonment of the idea of *centre-seeking* or *centre-flying forces*, will greatly simplify the explanation of the earth's motion of revolution.

Id., p. 10.

50. It is owing to the attractive influence of the neighboring planets, which modify the effect of the sun's attraction.

Id., p. 15.

51. The change of seasons is produced by the revolution of the earth, together with the inclination and constant parallelism of the axis.

Id., p. 16.

52. The term Circle, in geographical science, is used in a restricted sense. *The Geographical Circles* are not planes cutting the terrestrial globe, but simply lines encircling it.

Guyot's Phys. Geog., pp. 6 and 7.

53. Into Great Circles and Small Circles and into Circles of Position, and Climatic Circles.

Id., pp. 6 and 7.

54. Those which bisect the surface of the sphere are called Great Circles. All others are Small Circles.

Id., p. 7.

55. Circles of position include the Equator, a great circle encompassing the globe from east to west, midway between the poles; Meridians, great circles encompassing the globe from north to south, intersecting at the poles, and crossing the Equator at right angles; and Parallels, small circles parallel to the Equator.

tor. They are used in determining the geographical position of places.

Id., p. 7.

56. They are four parallels which serve not only to determine position, but also to mark certain important climatic boundaries, hence they may be distinguished as Climatic Parallels.

Id., p. 7.

57. They are the Equator, the Meridians, and the Parallels.

Id., p. 7.

58. The Tropics, the Polar Circles and the Ecliptic.

Id., p. 7.

59. Every circle, whether great or small, is divided into 360 equal parts, called *degrees*.

Eclectic Series School Geog., No. 3, p. 7.

60. The Latitude of a place, is the distance of its parallel from the equator.

Id., p. 7.

61. $69\frac{1}{8}$ miles, or $\frac{1}{360}$ part of the circumference of the earth.

Guyot's Phys. Geog., p. 7.

62. Near the poles the degrees are slightly longer, owing to the oblateness of the sphere.

Id., p. 7.

63. Upon the Meridians.

Id., p. 7.

64. One minute of longitude at the equator constitutes the *geographical* or *nautical mile* used in reckoning distances at sea.

Id., p. 7.

65. The Longitude of a place, is the distance of its meridian from the prime meridian.

Eclectic Series School Geography, No. 3, p. 7.

66. The length of the degrees of longitude decreases as we recede from the equator, the parallels becoming smaller the nearer we approach the poles.

Id., p. 7.

67. Upon the parallels and the equator.

Id., p. 7.

68. There are 180° of west longitude and 180° of east longitude.

Id., p. 7.

69. At the poles where all the meridians meet, longitude ceases.

Id., p. 7.

70. There are 90° of north latitude, and 90° of south latitude.

Id., p. 7.

71. Places on the equator have no latitude.

Harper's School Geog., p. 3.

72. The meridian from which longitude is reckoned is called the prime meridian.

Houston's Phys. Geog., p. 13.

73. For each nation it is generally the meridian of its own capital.

Id., p. 12.

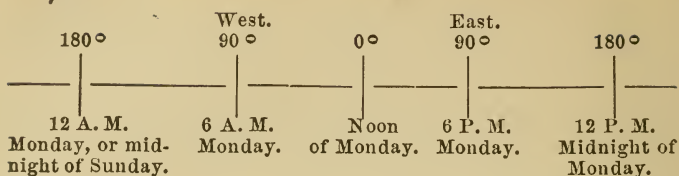
74. If the difference in time marked at two places be known, their difference in longitude can at once be ascertained, and *vice versa*.

Guyot's Phys. Geog., p. 7.

75. Since any given point on the earth's surface passes through 360° of longitude—one entire rotation—in 24 hours, it must pass through $3\frac{6}{4}^\circ$, or 15° , in one hour; and 1° in $\frac{1}{15}$ of an hour, or four minutes.

Id., p. 7.

76.

*Guyot's Physical Geog., p. 7.*77. A Quadrant is one quarter of a circle, or 90° .*Mattison's High School Astronomy, p. 22.*

78. The Tropics are parallels which mark the highest latitude which receives the vertical rays of the sun.

*Guyot's Phys. Geog., p. 7.*79. They are located $23\frac{1}{2}^\circ$ from the equator.

80. They are parallels which mark the limits of illumination when the sun is vertical at the tropics.

*Id., p. 7.*81. They are located $23\frac{1}{2}^\circ$ from the poles.*Id., p. 7.*82. Their position is fixed by the inclination of the earth's axis $23\frac{1}{2}$ degrees towards the plane of its orbit.*Id., p. 7.*

83. The Zones enclosed by these circles are: one Torrid Zone, two Temperate Zones, and two Frigid Zones.

Swinton's Complete Course in Geog., p. 7.

84. The Torrid Zone is between the Tropic of Cancer and the Tropic of Capricorn.

Id., p. 7.

85. The Temperates lie between the Tropics and the Polar Circles.

Id., p. 7.

86. The Frigids lie between the Polar Circles and the Poles.

Id., p. 7.

87. The Torrid Zone is 47° , (= about 3,250 miles) in breadth.

Id., p. 7.

88. Each Temperate Zone is 43° (= nearly 3,000 miles) in breadth.

Id., p. 7.

89. Each Frigid Zone is $23\frac{1}{2}^{\circ}$ (= 1,625 miles) in width.

Id., p. 7.

90. The Ecliptic is a great circle whose plane coincides with that of the earth's orbit.

Guyot's Phys. Geog., p. 7.

91. $23\frac{1}{2}^{\circ}$ toward the plane of the Ecliptic.

Id., p. 7.

92. If the earth's axis had been perpendicular to the plane of its orbit, the equator would have coincided with the ecliptic; day and night would have been of equal duration throughout the year, and there would have been no diversity of seasons.

Loomis's Treatise on Astronomy, p. 63.

93. If the inclination of the equator to the ecliptic had been greater than it is, the sun would have receded farther from the equator on the north side in Summer, and on the south side in Winter, and the heat of Summer as well as the cold of Winter would have been more intense; that is the diversity of the seasons would have been greater than at present.

Id., p. 63.

94. They are the times of the year at which the sun's vertical rays fall exactly on the equator.

95. There are two equinoxes, the vernal and autumnal.

Loomis's Treatise on Astronomy, p. 59.

96. The vernal equinox takes place on the 20th of March and the autumnal on the 22d of September.

Id., p. 59.

97. The ecliptic intersects the equator at two points diametrically opposite to each other. These are called the equinoctial points.

Id., p. 59.

98. The solstices are the times at which the vertical rays of the sun reach their farthest northern or southern limit, and fall vertical on one or the other of the tropics.

Houston's Phys. Geog., p. 17.

99. There are two solstices called the Summer solstice, and the Winter solstice.

Id., p. 17.

100. The Summer Solstice takes place on the 21st of June, and the Winter Solstice on the 21st of December.

Id., p. 17.

101. They are the points of the ecliptic which are midway between the equinoxes.

Loomis's Astron., p. 59.

102. This circle is so called because solar and lunar eclipses can only take place when the moon is very near its plane.

Id., p. 59.

103. Whenever more than half of either the northern or southern hemisphere is illumined by the rays of the sun, the length of the day in that hemisphere will exceed that of the night, in proportion as the length of the illumined part, measured along any of the parallels, exceeds that of the dark part.

Houston's Phys. Geog., p. 18.

QUESTIONS ON POLITICAL GEOGRAPHY.

1. Define Political Geography.
2. Under what heads may this division of Geography be discussed?
3. What Political divisions does the continent of North America comprise?
4. Of what races does the population of the United States consist?
5. What is the number of the population of the United States?
6. What are the leading forms of industry in the different localities?
7. What are the leading exports and imports of foreign commerce?
8. With what countries is the commerce of the United States?
9. What are the divisions of British America?
10. What are the most important provinces of British America?
11. In what does their source of wealth consist?
12. What are its forms of industry?
13. How does its commerce rank?
14. How is the Dominion governed?
15. What is the number of its population and what is its state of advancement?
16. Locate the Northwest Territory.

17. What difference exists between the population of Greenland and Iceland?

18. What is the character of the population of Mexico?

19. What are their forms of industry?

20. What their sources of wealth?

21. Of what divisions does Central America consist?

22. What gives importance to this country?

23. To whom do the West Indies belong?

24. How many and what are the political divisions of South America?

25. What is the number of inhabitants of South America? To what races do they belong?

26. What is the state of commerce of South America?

27. Which is the most important country in South America?

28. Which is the largest city in the Southern Hemisphere?

29. What is the state of civilization of South America?

30. What is true of the natural resources of Brazil?

31. What are its principal industries?

32. Which is the most progressive of the Spanish American republics?

33. Name the British Isles.

34. What does the British Empire comprise?

35. What is the form of government of the British Empire?

36. What is the rank of England in the United Kingdom?

37. In what do its resources consist?

38. What is the commercial rank of England?

39. What are the resources of Wales?
40. What are the employments of the Scotch?
41. What difference exists between the people of the highlands and the lowlands?
42. For what is Glasgow noted?
43. Describe Ireland.
44. What are its political divisions?
45. What are its important cities and for what is each noted?
46. How many and what are the Empires of Europe?
47. How many and what are its Republics?
48. How many and what are its Kingdoms?
49. Which of the latter are Absolute Monarchies?
50. What is the total population of Europe?
51. Of what race does it consist and what branches does it include?
52. What countries occupy the Scandinavian Peninsula?
53. What are the exports of Norway?
54. What the exports of Sweden?
55. What is the most northern town in the world?
56. What races dwell in the extreme northern part of the Scandinavian Peninsula?
57. How does the Russian Empire rank, and what does it include?
58. What is the state of the inhabitants?
59. What are the five Great Powers of Europe?
60. What large and navigable rivers in Central Europe?
61. What is the rank of France among States?
62. What of its education?
63. What are the forms of industries of the people?

64. For what is the capital city of France noted, and how does it rank in size?

65. Of how many states is the German Empire composed?

66. Name the most important.

67. What is the extent and population of Germany?

68. What are the employments of its people?

69. What are its exports, and how does it compare with England in manufactures and commerce?

70. How does Germany rank with other countries in educational matters?

71. What are the divisions of the Austrian Empire?

72. Why is the foreign trade of Austria limited?

73. Of what races are the people of Austria made up?

74. Mention some of its important cities.

75. What lands does Denmark comprise?

76. What are the employments of the people?

77. What peculiarity about the State of Holland?

78. What river waters Belgium and how is Belgium situated?

79. For what is the country of Switzerland principally noted?

80. What are its manufactures?

81. What is the present condition of the people of Spain?

82. What are the pursuits of the people of Portugal?

83. With what other people are they closely allied?

84. What are the characteristics of the people of Italy?

85. What is the most important manufacture of Italy?
86. What are the interesting features of Rome?
87. What gives special interest to the Kingdom of Greece?
88. What are the present employments of its people?
89. Of what race are the Turks?
90. To which continent does their Empire more properly belong?
91. What are the races of Asia and what is the number of each?
92. What is its state of civilization?
93. What is true of the rivers of Asia?
94. What European powers have possessions in Asia?
95. What is the form of government throughout Asia?
96. How does China rank as an Empire?
97. Of what political divisions does it consist?
98. What is the number of its population?
99. What is the character of its civilization?
100. Of what does the Empire of Japan consist?
101. How do the Japanese rank in civilization?
102. What is the situation of Africa?
103. Give the outline of Africa.
104. For what is Africa remarkable?
105. Describe the mountains of Africa.
106. Name the rivers of Africa.
107. Describe the lakes of Africa.
108. Name the productions of Africa.
109. Describe the government of Africa.
110. What is the number of inhabitants and to what races do they belong?
111. Describe Egypt.

- 112. For what is Egypt celebrated?
- 113. Name the countries of Africa.
- 114. What does Australia comprise?
- 115. Describe the inhabitants of Australia.
- 116. Name the countries of Australia and give the capital of each.
- 117. What is the government of Australia?
- 118. What is Oceania?

ANSWERS TO QUESTIONS ON POLITICAL GEOGRAPHY.

1. Political Geography treats of men as inhabitants of the Earth, of the modes of life they lead, and of the forms of government under which they live.

Eclectic Series School Geog., No. 3, p. 1.

2. Races, Nations, Industries, Governments, Civilization, etc.

Swinton's Complete Course, p. 1.

3. North America comprises six divisions:

(1) The United States occupying the middle part of North America, and the north-western part called Alaska.

(2) British America.

(3) Danish America, comprising the islands of Greenland and Iceland.

(4) The Republic of Mexico, lying south of the United States.

(5) The Republics of Central America, lying south-east of Mexico, between the Caribbean Sea and Pacific Ocean.

(6) The West Indies, comprising two island chains: the Antilles, and the Bahamas.

Eclectic Series, No. 2.

4. The white race, Negroes and mulattoes, the descendants of slaves brought from Africa, Indians and Chinese.

Harper's School Geog., p. 33.

5. In 1870, the population was about 39,000,000. The white race numbered about 34,000,000; Negroes and mulattoes nearly 5,000,000. Indians 350,000. Chinese 64,000.

Id., p. 33.

6. Agriculture is the leading industry. Its chief seats are the Central and Atlantic Plains and the California Basin. Grazing is an important occupation in the agricultural regions. Mining is an industry of great and growing importance. The principal mines of coal and iron are in the Eastern Highland; those of gold and silver in the mountains of the Western Highland; those of lead in Nevada, Utah, and the valley of the upper Mississippi; and those of copper on the shores of Lake Superior. Manufacturing has its chief seat north of the Potomac and Ohio. Fishing is a leading interest in some of the New England States. Commerce, domestic and foreign.

Id., pp. 33 and 34.

7. Cotton, breadstuffs, provisions, petroleum, gold and tobacco are the exports. The imports are dry goods, sugar, coffee, hides, tea, iron and tin.

Id., p. 34.

8. The foreign commerce of the United States is chiefly with England, Germany and France in Europe; with Canada, the West Indies and Brazil in America; and with China and Japan in Asia.

Id., p. 34.

9. This extensive country may be divided into three parts: The Dominion of Canada, the Province of Newfoundland and the "North-west Territory."

Swinton's Complete Course, p. 81.

10. Nova Scotia, Prince Edward Island, New Brunswick, Quebec, Ontario. These five provinces all lie in the basin of the St. Lawrence and the Great

Lakes. They form the most populous, productive, and important section of the British American possessions.

Id., p. 81.

11. This region possesses great natural wealth

(1) In its extensive forests of pine, maple, beech and oak.

(2) In the fertile soil of the St. Lawrence Basin.

(3) In the fisheries of the St. Lawrence and neighboring waters.

(4) In its mines of iron, coal, copper and lead.

(5) In its direct water communication with the Atlantic.

Id., p. 82.

12. Farming, lumbering, ship-building, the fisheries, mining and commerce.

Id., p. 82.

13. With the exception of the United States and England it has a larger commercial marine than any other country.

Id., p. 82.

14. The Dominion government is vested in a Governor-General appointed by the British sovereign, and a legislature, called the Parliament.

Id., p. 82.

15. The population is about 4,000,000. In civilization, the Dominion ranks with the United States. The people are educated, prosperous and progressive.

Id., p. 82.

16. The North-west Territory includes the vast tract of country north of the Dominion of Canada and the United States stretching from the Atlantic to the Pacific and extending about 1,400 miles from north to south.

Id., p. 83.

17. The people of Iceland are more intelligent.

Id., p. 83.

18. The population consists of Mexican Indians who form the majority, of Creoles, or people descended from Spanish parents; and of Mestizos, or mixed races. The Mexicans are a civilized but not a progressive race.

Id., p. 84.

19. Agriculture and silver mining are the principal occupations, but every branch of industry is at the lowest ebb.

Id., p. 84.

20. Mexico is rich in silver, gold, quicksilver and other metals; and the soil is generally fertile. The country is, however, destitute of water highways from the interior to the coast.

Id., p. 84.

21. Central America is the seat of five independent republics—Guatemala, Honduras, San Salvador, Nicaragua, and Costa Rica, and of the small province of British Honduras, or Belize.

Id., p. 84.

22. The importance of this country arises:

(1) From its geographical position on the narrow neck of land between the Atlantic and Pacific oceans.

(2) From its abundance of valuable natural products.

Id., p. 84.

23. Cuba and Porto Rico are colonies of Spain; Jamaica, the Bahamas, and most of the Lesser Antilles belong to Great Britain; the rest belong to France, and other European countries. Hayti was once divided between France and Spain; it now consists of two independent negro republics—Hayti and San Domingo.

Harper's School Geog., p. 73.

24. There are thirteen political divisions in South America. Nine states or republics, Venezuela, Columbia, Ecuador, Peru, Bolivia, Chili, Argentina, Uruguay, Paraguay. One empire, Brazil. Three colonies British, Dutch and French Guyana. Patagonia has no organized government^t.

Eclectic Geog., No. 3, p. 86.

25. South America has about 26,000,000 inhabitants. One-third of these belong to the *Caucasian* race, one-third are *Indians* and the remainder consists of *Negroes* and persons of *mixed blood*, as, Mestizoes and Mulattoes.

Id., p. 85.

26. South America has had a comparatively limited commerce. It is now rapidly increasing, especially in Brazil, Chili, and the Argentine Confederation.

Harper's School Geog., p. 78.

27. Brazil is the largest and most important country of South America. Its area is nearly as great as that of the United States or of all Europe.

Swinton's Complete Course, p. 89.

28. Rio Janeiro, sometimes called Rio, the most important port, is the capital of Brazil and the largest city in the Southern Hemisphere.

Harper's School Geog., p. 80.

29. The people are in general uneducated and unprogressive. They have few railroads, few telegraphs, steamers, printing-presses or manufactures. South America has given to the rest of the world little except its tropical products, its gold and silver, and that most valuable of root-plants, the potato.

Swinton's Complete Course, p. 88.

30. In the richness and variety of its vegetation, Brazil surpasses all other countries.

Id., p. 88.

31. Agriculture and stock-raising, are the chief occupations. The staple productions for export are coffee, of which it supplies three-fourths of the whole quantity used in the world; and sugar, in the production of which it is second only to Cuba.

Id., p. 89.

32. Chili is the most enterprising country of South America, and has a large proportion of European inhabitants.

Harper's School Geography, p. 81.

33. The British Isles consist of Great Britain and Ireland, together with numerous small adjacent islands.

Swinton's Complete Course, p. 95.

34. The name British Empire is applied to the Kingdom of Great Britain and Ireland and its numerous colonies and possessions in various parts of the world.

Id., p. 95.

35. The Government is a hereditary limited monarchy. The laws are made by Parliament, which is composed of the House of Lords and the House of Commons.

Id., p. 95.

36. England is the largest, most populous, and most important division of the United Kingdom.

Id., p. 95.

37. Its vast deposits of coal, iron, and other minerals, its productive soil, its extent of sea-coast, its great number of good harbors and navigable bays and river-mouths, and its central situation for the commerce of the world, are the principal sources of the wealth and power of England.

Id., p. 95.

38. Commercially, England ranks as the foremost of countries.

Id., p. 96.

39. It is rich in mines of copper, iron and coal.

Id., p. 96.

40. Manufacturing, agriculture and the fisheries..

Id., p. 96.

41. The Highlanders are the descendants of the native race of Britain, and speak a Celtic language called Gaelic. The inhabitants of the Lowlands belong to the same race as the English, and speak the English language.

Id., p. 96.

42. It is celebrated for its iron and cotton manufacturing.

Id., p. 96.

43. Ireland is a beautiful and fertile island, about the size of the State of Maine.

Id., p. 98.

44. Politically it is divided into four provinces, Ulster, Leinster, Munster and Connaught, representing four ancient kingdoms, and these are subdivided into thirty-two counties.

Id., p. 98.

45. Dublin, the metropolis, a beautiful city and a seat of culture; Belfast, the center of the linen manufacture and trade, and Cork, noted for its splendid harbor, and its ship-building and trade.

Id., p. 98.

46. Europe contains four empires, Russia, Turkey, Germany, and Austria.

Harper's School Geog., p. 88.

47. Two republics, France and Switzerland.

Id., p. 88.

48. There are ten independent kingdoms, Norway, Sweden, Great Britain and Ireland, Spain, Portugal, Italy, Greece, Denmark, Belgium, and Holland.

Id., p. 88.

49. Russia and Turkey are absolute, Germany, Austria and the ten kingdoms are limited monarchies.

Id., p. 88.

50. The total population of Europe is estimated at 300 millions, three-fourths of it being in Western Europe.

Id., p. 88.

51. It is nearly all Caucasian. The three branches of the Caucasian race in Europe are the Celts in the west, the Teutons from the Alps to Scotland and northern Norway, and the Slaves in the Great Plain.

Id., p. 88.

52. Sweden occupies the eastern, and Norway the western part.

Swinton's Complete Course, p. 103.

53. Lumber and fish.

Harper's School Geog., p. 88

54. Grain, iron and copper.

Id., p. 88.

55. Hammerfest is the most northern town in the world.

Id., p. 88.

56. The Laplanders and Finns, who belong to the Tartar race. Their chief wealth is the reindeer which supplies them with food, clothing, and many useful articles.

Swinton's Complete Course, p. 103.

57. Russia is the most extensive of Empires, including one-half of Europe and one-third of Asia. It is about twice the size, and has nearly double the population of the United States.

Id., p. 102.

58. The inhabitants are mostly Slavonians. Germans predominate in the provinces bordering on the

Baltic Sea. The higher classes are well educated, but the great mass of the people cannot read or write.

Eclectic Series School Geographies, No. 3, p. 91.

59. Russia, Germany, Austria, England and France, are the largest, most populous and powerful, and are called the Five Great Powers.

Id., p. 90.

60. Four navigable rivers—the Po, the Rhone, the Rhine, and the Danube—flow from the heart of high Europe and pass through the plains to four seas.

Id., p. 90.

61. France is one of the oldest, most powerful and most highly civilized nations of Europe.

Swinton's Complete Course, p. 99.

62. In literature, science and art France has long been distinguished; but until recently the education of the great body of the French people was almost entirely neglected. Now, however, an organized system of popular instruction is in operation under the control of the Government.

Id., p. 99.

63. Agriculture, manufacturing and commerce.

Id., p. 99.

64. It is the most beautiful and attractive of cities, and is the world's center of modern art, fashion and pleasure, as London is of commerce and of business. It is distinguished for its magnificent public buildings, public gardens, and places of amusement, and for its great libraries, museums, art-galleries, and scientific schools, and also for the manufacture and sale of articles of art, ornament, and fashion. It is second only to London in wealth and trade.

Id., p. 99.

65. Politically the German Empire consists of twenty-six States.

Id., p. 101.

66. The Kingdom of Prussia—which embraces two-thirds of the area of Germany and a majority of its population,—and the three kingdoms of Bavaria, Saxony, and Wurtemberg. The other twenty-two States are small in extent, and are variously called grand duchies, duchies principalities, etc.

Id., p. 101.

67. The area of Germany is nearly the same as that of France, being 208,000 square miles. Population is about the same as that of the United States. ' 1

Id., p. 101.

68. The leading industries are agriculture, manufacturing, mining and commerce.

Id., p. 101.

69. Wheat, wines, wool, and manufactures are the principal exports. In manufactures Germany is behind England and France.

Id., p. 101.

70. In education Germany is the foremost country in Europe. It has a fine system of public schools and education is compulsory.

Id., p. 101.

71. Austria proper and the kingdom of Hungary, together with the Polish States to the north of the Carpathian mountains.

Id., p. 102.

72. As Austria has but little sea-coast, her foreign trade is limited.

Id., p. 102.

73. About one half of the population belong to the Slavonic race, and one fifth to the Germanic; one-sixth

are Magyars, and the rest are made up of Roumanians, Jews, Gypsies, Greeks, etc.

Id., p. 102.

74. Vienna is the finest city of Central Europe, Pesth, the chief commercial city of Hungary ; Prague in Bohemia, Trieste, etc.

Id., p. 102.

75. Denmark consists of the peninsula of Jutland and of the adjacent islands at the entrance of the Baltic, the largest being Zealand and Fünen.

Id., p. 103.

76. Denmark is mainly an agricultural and grazing country, but many Danes are engaged in fishing, or in a seafaring life.

Id., p. 103.

77. Some parts are even lower than the ocean at high tide and would be inundated, if they were not protected by extensive dykes.

Eclectic Series School Geographies, p. 95.

78. The western part of Belgium, watered by the Scheldt and its tributaries, is a continuation of the flats of Holland.

Swinton's Complete Course, p. 104.

79. Switzerland has the sublimest scenery in Europe.

Id., p. 105.

80. The manufacture of small articles such as watches, jewelry, silk-stuffs, ribbons and toys, is the chief occupation.

Harper's School Geog., p. 95.

81. In the sixteenth century, Spain was the greatest nation in Europe ; but owing to bad government it has sunk to the position of a second-rate power, and is neither progressive nor highly civilized.

Swinton's Complete Course, p. 105.

82. The leading pursuit is the culture of the vine, from which port wine is made, and of the olive and semi-tropical fruits.

Id., p. 105.

83. The Spanish.

Id., p. 105.

84. The Italians are the purest representatives of the Latin race, and their language comes directly from the Latin. The people are generally industrious, frugal and temperate, but excitable and passionate.

Id., p. 106.

85. The silk manufactures of Italy are the most important in Europe.

Id., p. 106.

86. Every part of Rome contains remains of temples, baths, tombs, arches, and columns which excite admiration.

Id., p. 106.

87. Five hundred years before the birth of Christ Greece was the most civilized of nations. Its republics were famous for their illustrious soldiers, artists, philosophers, poets and historians.

Id., p. 107.

88. A large part of the people are engaged in raising sheep and goats.

Id., p. 107.

89. The Turks belong to the Mongolian race.

Id., p. 107.

90. The Empire of the Turks is more properly an Asiatic power.

Id., p. 107.

91. Mongolians, 500,000,000, Malay, 20,000,000, Caucasian, 180,000,000.

Id., p. 110.

92. The fertile plains of China and tropical Asia are the great seats of population. In this region civilized nations have existed for thousands of years, but this civilization has long been stationary.

Id., p. 110.

93. They rank among the longest and largest on the globe.

Id., p. 110.

94. The English, the Russians, and the Dutch are the only European nations that possess extensive dominions in Asia. Siberia and Georgia form parts of the Russian Empire; India and the Western Coast of Farther India belong to England; and the greater portion of the East Indian Archipelago is governed by the Dutch.

Eclectic Geography, No. 2, p. 75.

95. The government is an absolute monarchy.

Harper's School Geography, p. 106.

96. The Chinese Empire is one of five great governments which together cover more than half of the land surface of the globe. These are, in the order of their area, the British Empire, the Russian Empire, the Chinese Empire, the United States and Brazil.

Id., p. 105.

97. The Empire is divided into three parts:

1. China proper.
2. Mantchooria.
3. The Colonies, including Thibet, Mongolia, Little Turkestan, and Soongaria.

Eclectic Intermediate Geography, p. 76.

98. The total population of the Chinese Empire is estimated at 425,000,000. This is the densest population in the world.

Harper's School Geography, p. 105.

99. The civilization of China was already flourishing at a time when the Christian nations had no existence. With the exception of the steam-engine and the electric telegraph there is scarcely any great invention of modern times which has not been in use among the Chinese for many centuries. Still, they can not be regarded as a progressive people, and their conceit prevents their learning new ideas. It is but recently that China has been opened to the world.

Swinton's Geography, p. 112.

100. The Empire of Japan is composed of islands, the largest of which are Nippon, Yesso or Jesso, Kiusiu and Sikoke.

Monteith's Comprehensive Geography, p. 81.

101. The Japanese are the most highly civilized and the most progressive of the Mongolian race. They are now rapidly introducing railroads, telegraphs, and improved machinery of all kinds, and have established public and scientific schools under the instruction of European and American teachers.

Swinton's Geography, p. 113.

102. Africa extends between the parallels of 37° North and 35° South latitude. It is surrounded on all sides by the ocean, except where it is united to Asia by the Isthmus of Suez.

Id., p. 119.

103. It has few projections of land or inbreakings of the sea, and is the most regular of all the grand divisions. Its figure resembles that of an irregular triangle.

Id., p. 119.

104. Africa is remarkable for its high surface, extensive deserts, and hot climate.

Monteith's Comprehensive Geog., p. 83.

105. The mountains of Africa are :

1. The Atlas range, in the northwest.
2. The mountains of Abyssinia.
3. The mountains of the Great Lake Region, around the sources of the Nile, in which is Kilimanjaro (20,000 feet high), the loftiest peak of Africa.
4. The mountains of South Africa, terminating in Table Mountain, in Cape Colony.
5. The Kong Mountains, along the Guinea Coast.

Swinton's Geog., pp. 119-120.

106. The African rivers are few in number, though some of them are noted for their great length. The most important are the Nile, Niger, Congo, Zambesi, and Orange.

Id., p. 120.

107. In the equatorial region of Africa is a series of lakes which in size rival, if they do not surpass, the Great Lakes of North America. The largest of these are lakes Albert, Victoria, and Tanganyika.

Id., p. 120.

108. The productions of Africa comprise grain, cotton, sugar, coffee, tobacco, indigo, ivory, ebony, ostrich feathers, palm oil, and tropical fruits.

Monteith's Comprehensive Geog., p. 84.

109. All the native governments are despotisms, and, except in Egypt and the Barbary States, are of the rudest and simplest description.

Harper's School Geog., p. 117.

110. The population of Africa is estimated at 193,000,000. They belong to two races, the Caucasian, and the Ethiopian.

Eclectic Intermediate Geog., p. 80.

111. Egypt, the most important and most interesting country of Africa, occupies the lower portion of the Nile valley, reaching from the Mediterranean to the

First Cataract, a distance of between 500 and 600 miles.

Swinton's Geography, p. 120.

112. Egypt is celebrated for its magnificent pyramids, temples, obelisks, statues, and tombs built more than 4000 years ago.

Monteith's Comprehensive Geog., p. 84.

113. Egypt, Nubia, Abyssinia, Morocco, Algeria, Tunis, Tripoli, The Sahara, Soudan and Equatorial Africa, Senegambia, Sierra Leone, Liberia, Guinea Coast, Cape Colony and Natal, Orange Free State, Transvaal Republic, Madagascar and Zanzibar.

Swinton's Geography, p. 123.

114. Australia comprises the continental island of Australia and the large islands of New Guinea, New Zealand, Tasmania (or Van Diemen Land,) together with many small islands and groups of islands adjacent to Australia.

Id., p. 125.

115. The inhabitants are chiefly British, and their principal occupations are mining, agriculture, and grazing. The original inhabitants of Australia are short and stout, with small heads, flat noses, thick protruding lips, long coarse hair, and of a black or dark brown complexion.

Monteith's Comprehensive Geog., p. 87.

116.

(1) Queensland occupies the north-eastern part of the continent. Brisbane is the capital.

(2) New South Wales lies south of Queensland. Sydney is the capital.

(3) Victoria lies south of New South Wales. Melbourne is the capital.

(4) South Australia lies west of Victoria and New South Wales. The capital is Adelaide.

(5) West Australia. Perth is the capital.

(6 and 7) In North Australia and Alexandra Land, no settlements have yet been made.

(8) Tasmania. Hobart Town is the capital.

Eclectic Intermediate Geog., p. 83.

117. The colonies are politically independent of one another, and are governed by representatives chosen by universal suffrage, and by executive officers appointed by the Crown.

Harper's School Geog., p. 112.

118. Oceanica is the great Island division of the earth. It includes Malaysia, Australia, and Polynesia. The extent of the land surface is 4,500,000 square miles.

Mitchell's Intermediate Geog., p. 97.

QUESTIONS ON PHYSICAL GEOGRAPHY.

1. Define Physical Geography.
2. Into what classes may the objects of which Physical Geography treats, be divided?
3. What is the probable condition of the interior of the earth?
4. What considerations indicate that the earth is still in a molten condition?
5. What phenomena does the heated interior produce?
6. What is a volcano?
7. What is the usual shape of a volcano?
8. Where else may the crater be located?
9. What is the width of craters?
10. Upon what does the slope of volcanoes depend?
11. Into what two classes may they be divided?
12. Define active volcanoes.
13. Define extinct volcanoes.
14. What is the number of volcanoes?
15. What is their ordinary arrangement?
16. Give examples.
17. What apparent exceptions to this rule?
18. What is the peculiarity in the distribution of volcanoes?
19. What explanation is given of this fact?

20. Locate the two volcanic zones which encircle the earth.

21. In what regions of the earth is the greatest volcanic activity displayed?

22. What theory is advanced as a possible cause of volcanoes?

23. Mention other volcanic phenomena.

24. What are earthquakes?

25. What three kinds of earthquake movement have been noted?

26. What is the usual duration of earthquakes?

27. What is an earthquake area?

28. What is the cause of earthquakes?

29. What is the law of their distribution?

30. What connection exists between volcanoes and earthquakes?

31. What relation between earthquakes and atmospheric conditions?

32. Where are the land masses of the globe located?

33. Of what does the land consist?

34. Under what two aspects may the land be studied?

35. What separation of the land masses is marked by the zone of fracture?

36. What is the common form of the land masses?

37. What difference in the direction of prolongation between the eastern and western continents?

38. What difference in other respects results from this?

39. What differences in outline do the continents exhibit?

40. What influence has the articulations of coast upon a country and its people?

41. What fact is true of well articulated countries?
42. How do the continents compare in this respect?
43. What constitutes the relief of a country?
44. What two forms of relief exist?
45. What influence has the relief of a country upon its climate, life, &c.?
46. What proportion of the continents is occupied by plains?
47. How may plains be classified as to their formation and differences in character of surface?
48. What are plateaus?
49. Define a mountain chain.
50. Define a mountain system.
51. How are mountains supposed to have been formed?
52. What two classes of mountains as to manner of formation?
53. What two classes of valleys?
54. What are continental axes?
55. What general law of relief has been observed from a study of the continents?
56. What proportion of the land surface do the islands form?
57. What two classes of islands?
58. Define continental islands.
59. What similarity do they bear to the mainland, and what does this indicate?
60. Define oceanic islands.
61. What two classes of oceanic islands?
62. How do continental islands compare in size with oceanic islands?
63. What contrast in the rock material of the two classes of islands?

64. Describe the common forms of coral islands.
65. Upon what are coral islands built?
66. Where are coral islands found and why are they confined to these regions?
67. What office do the waters of the earth perform?
68. What is the composition of water?
69. What important peculiarity does water possess?
70. What is the great reservoir of water?
71. How are the waters dispersed over the earth?
72. What are the sources of rivers?
73. Where are springs most numerous?
74. Upon what does the temperature of springs depend?
75. What is a river system?
76. Define river basin.
77. Define water-shed.
78. Upon what does the volume of a river depend?
79. What are canyons?
80. What are deltas and estuaries?
81. What is erosion?
82. Define lakes.
83. What are mountain lakes?
84. What place have lakes in the economy of nature?
85. What is the cause of the saltiness of some lakes?
86. Where are lakes most numerous?
87. How is the sea divided?
88. How are ocean basins divided?
89. Describe the Pacific basin.
90. Describe the Atlantic basin.
91. Wherein do the ocean basins present great differences?

92. How are coast waters classified?
93. What is known of the ocean bed?
94. How are the depths estimated in the absence of soundings?
95. What are the greatest depths of the sea?
96. Describe waves.
97. What causes the advance of the wave?
98. What retards or breaks it?
99. Describe tides.
100. Define flood and ebb tides.
101. How are tides produced?
102. What are tidal waves?
103. Define spring and neap tides.
104. How is the height of tides modified?
105. What phenomena are produced by these differences in level?
106. Describe oceanic currents.
107. What is the cause of currents?
108. To what three classes of currents does difference of temperature give rise?
109. What modifies the direction of the polar and return currents?
110. What office does the atmosphere of the earth perform?
111. What is its composition?
112. What is the depth of the atmosphere?
113. What effect does the great compression of the atmosphere at the earth's surface produce?
114. What is climate?
115. Define Astronomical climate.
116. Define Physical climate.
117. What is the general law of astronomical climate?
118. Why is temperature greater at the Equator, and why does it gradually diminish toward the Poles?

119. What modifications of climate do the earth's motions produce?
120. Where are the general deviations from the astronomical climate, most marked?
121. What are isothermal lines?
122. Where are the extreme deviations from astronomical climate found?
123. What difference between oceanic and continental climate?
124. What is the origin of winds?
125. How may they be classified?
126. Where are the regions of these several classes of winds located?
127. What are the equatorial calms and how produced?
128. Name some important constant winds.
129. What gives direction to these winds?
130. Name some periodical and variable winds.
131. Upon what does the distribution of rain depend?
132. How are clouds formed?
133. Define dew, snow, hail, and frost.
134. What portion of the earth's surface receives no rain, and why?
135. Where are storms most violent?
136. Describe glaciers.
137. What is the origin of glaciers?
138. Where is the most remarkable glacier region?
139. What evidences exist of former systems of glaciers?
140. What is the snow line?
141. What causes lightning and thunder?
142. Name some other electrical phenomena.
143. What constitutes the flora of a country?

144. What gives variety to the plant life of the globe?

145. What two forms of distribution of vegetation do we find?

146. In what region is found greatest luxuriance and why?

147. What similarity exists between the vertical and horizontal distribution?

148. What constitutes the fauna of a country?

149. What law of distribution prevails?

150. What exception to this rule in the case of marine animals?

151. What marks the range of animals?

152. What exception to this rule?

153. What appears to be the basis of distribution of plants?

154. What modifies the fauna of each continent?

155. What evidences exist as to the unity of the human race?

156. What three strongly marked types exist?

157. What three secondary races are found?

158. What is supposed to have produced the diversity of races?

159. What is the law of perfection of type in man?

160. Which is the typical or normal race?

ANSWERS TO QUESTIONS ON PHYSICAL GEOGRAPHY.

1. Physical Geography treats of the Earth in its relations to nature and natural laws.

Houston's Phys. Geog., p. 1

2. Physical Geography treats of five classes of objects, viz; Land, Water, Air, Plants, and Animals.

Id., p. 1.

3. The interior is probably still in a semi-fluid or pasty condition.

4. The spheroidal form of the Earth is exactly what calculation shows would have been acquired, had the Earth once been in a molten state, and exposed to about the same velocity of rotation on its axis that it now has. This seems to point to a former fluidity and renders it probable that the present crust or solid part has been formed by the gradual cooling of the melted mass. The crust does not appear to have reached, as yet, any very considerable thickness, and the interior is, therefore, probably still in a semi-fluid state.

Id., p. 20.

5. Volcanoes, Earthquakes, Hot Springs, Non-volcanic igneous eruptions, and the gradual subsidences or elevations of the crust.

Id., p. 21.

6. A Volcano is a mountain or other elevation,

from which the materials of the interior escape to the surface.

Id., p. 21.

7. A volcanic mountain is usually of conical shape, with a circular basin or depression at its summit, called the Crater. In the center of the crater is the mouth of a perpendicular shaft or chimney.

Guyot's Phys. Geog., p. 12.

8. It may be either on the top or sides of the mountain.

Houston's Phys. Geog., p. 21.

9. Craters differ greatly in size, the larger varying from 2000 to 18000 feet.

Cornell's Phys. Geog., p. 24.

10. The slope of a volcano depends on the matter of which it is composed. *Lava* cones have very gentle slopes; *tufa* cones, or those originally formed of cinders wet with water and steam, have a steeper surface; and cones composed of dry cinders have the steepest slopes of all, their inclination sometimes being as great as 45 degrees.

Id., p. 24.

11. Volcanoes may be distinguished as Active and Extinct.

Id., p. 24.

12. Active Volcanoes are such as are either in a constant state of eruption, or have eruptions from time to time, with intervals of rest.

Id., p. 24.

13. Extinct Volcanoes are such as are now at rest but were subject to eruptions in former ages, as is shown by their form and structure, and the presence of craters.

Id., p. 24.

14. The number of volcanoes is not accurately known. The best authorities estimate it at about 672 of which 270 are active. Of these latter, 175 are on islands, and 95 on the coasts of continents.

Houston's Phys. Geog., p. 23.

15. Volcanoes, though they are but local and apparently independent accumulations of materials, ordinarily occur in *lines* more or less irregular.

Guyot's Phys. Geog., p. 15.

16. The six *volcanoes of Mexico* are on a line which, when prolonged into the Pacific, strikes the Volcanic island of Socorro. The *volcanoes of South America* are all on the line of the Andes; and those of *North America*, on the line of the Sierra Nevada and Cascade Mountains. Numerous examples are also found in other quarters of the globe.

Id., p. 15.

17. The *apparent-exception* to this rule is found where volcanoes seem isolated, or form groups consisting of a central volcano surrounded by secondary cones. But even in this case the linear arrangement is apparent, since the groups themselves form long bands, as in the Polynesian Islands.

Id., p. 15.

18. Nearly all the volcanoes on the Earth's surface are situated along the mountain ranges and belts of islands which skirt the shores of the continents, while the interior is almost destitute of them.

Id., p. 15.

19. As volcanoes are nothing but openings through the earth's crust, that permit an escape from the pasty interior, they will occur only where the crust is weakest. This will be on the borders of sinking oceans, in the line of fracture formed by the gradual separation

of the ocean's bed from the coasts of the continent.

Houston's Phys. Geog., p. 25.

20. The first zone includes the vast array of mountain chains, peninsulas, and bands of islands which encircle the Pacific Ocean with a belt of burning mountains.

The second zone, though less continuous, is hardly less remarkable. It is the belt of broken lands and inland seas, which, extending round the globe, separates the northern from the southern continents.

Guyot's Phys. Geog., p. 15.

21. The volcanic forces display the greatest intensity at the intersections of the two volcanic zones, in Central America and the East Indian Archipelago.

Id., p. 16.

22. The rain water which, having entered the ground, instead of reappearing in the form of springs or artesian wells, penetrates deep into these subterranean cavities, may become so heated, under the high pressure to which it is subject, as to produce the usual volcanic phenomena.

Id., p. 16.

23. Mud Volcanoes—small hillocks that emit streams of hot mud and water from their craters, but never molten rock. Fields of Fire—In certain localities inflammable gas issues from openings in the ground. When lighted it burns for a considerable time. Solfataras—regions where sulphur vapors escape, forming incrustations.

Houston's Phys. Geog., pp. 25 and 26.

24. Earthquakes are movements of the Earth's crust, varying in intensity from a hardly perceptible vibration to violent convulsions, which change the face of the ground and overthrow the most substantial works of man.

Guyot's Phys. Geog., p. 16.

25.

1. The wave-like or undulatory.
2. The vertical motion which acts from beneath like the explosion of a mine.
3. The whirling or rotary motion.

Id., p. 16.

26. When the area of disturbance is large, shocks of varying intensity generally follow each other at irregular intervals. Though, in general, the violence of the shock is soon passed, disturbances may occur at intervals of days and weeks, or even years.

Houston's Phys. Geog., p. 26.

27. There are circumscribed regions in which the surface is liable to be shaken simultaneously, such a region being called an earthquake area.

Guyot's Phys. Geog., p. 17.

28. It is now generally believed that the principal cause of earthquakes is the strain produced by the contraction of a cooling crust.

Houston's Phys. Geog., p. 27.

29. Earthquakes may occur in any part of the world, but are most frequent in volcanic districts. They are more frequent in mountainous than in flat countries.

Id., p. 27.

30. The analogy in the distribution of earthquakes and volcanoes is evident, yet the former occupy a far more extensive domain than the latter. Both are most intense in their action along the great fractures of the earth's crust; yet we are not, on that account, to conclude that the one is the cause of the other; they only require similar conditions for their manifestation.

Guyot's Phys. Geog., p. 17.

31. Within the tropics, especially, earthquakes are

most frequent in that part of the year in which the greatest atmospheric disturbances take place. They are most dreaded at the beginning of the rainy season, when the monsoons are changing direction.

Id., p. 17.

32. The land masses are crowded together around the North Pole, their northern limits being about the 70th parallel. Thence they extend towards the south in three vast divergent tracts, terminating in points widely separated one from another.

Id., p. 21.

33. The land consists of six great bodies called continents, and a multitude of small fragments called islands, which skirt the shores of the continents, or dot the broad expanse of the sea.

Id., p. 21.

34. Every continent presents itself to the observer in a twofold aspect, as a surface, with peculiarities of horizontal form and outline, given by the line of contact of land and water; and as a solid, with peculiarities of vertical form, given by the elevation of its surface above the level of the sea.

Id., p. 22.

35. Each of the three tracts of land is invaded nearly midway by the ocean, or by great inland seas, from which there results, in each, a belt of broken lands, peninsulas and islands. Within this belt are the great archipelagoes of the East and West Indies, and the peninsulas of Southern Asia and Europe.

Id., p. 21.

36. Every great continental mass has a figure more or less triangular. Australia alone approaches a quadrilateral form.

Id., p. 22.

37. In the two Americas, the sharpest angle of the continental figure is turned towards the south, and the greatest elongation is in the direction of the meridians. In Asia-Europe, on the contrary, the sharpest angle is towards the west, and the greatest elongation of the double continent is in the direction of the parallels.

In Africa and Australia, the greatest extent from east to west is approximately equal to that from north to south.

Id., p. 22.

38. America extending about 9,000 miles from north to south, traverses all the climatic zones, exhibiting, as a result, great variety in the character of its plants and animals. Asia-Europe having, also, a length of 9,000 miles, has, from the Pacific shores to the Atlantic a general similarity of climate, vegetation and animals.

Id., p. 22.

39. The outlines of the continents exhibit striking differences. Some are deeply indented with gulfs and inland seas; while others present a massive form without indentations or projections worthy of notice.

Id., p. 22.

40. They increase the length of coast line, and the contact of land and water; they favor the formation of convenient harbors, and open the interior of the continents to commerce by sea. The sea penetrating into the land moderates the extremes of temperature, and increases the moisture of the atmosphere. Again, the subdivision of the continents into peninsulas, forming diverse physical regions, secures a higher development of human society by assisting in the formation of distinct nationalities; like those created in the great peninsulas of India and Arabia, Greece, Italy and Spain.

Id., pp. 22-23.

41. The deeply indented, well articulated continents are, and have always been, the abode of the most highly civilized nations.

Id., p. 23.

42. Europe surpasses all the other continents in the relative magnitude of its indentations and projections; Asia is second, North America, though considerably less indented, still has peninsulas bearing to its entire area the proportion of 1:14. The southern continents, on the contrary, are nowhere deeply penetrated by the waters of the ocean.

Id., p. 23.

43. The vertical configuration of a continent or island—that is, its elevation as a whole, varied by plains, table-lands, mountains, and valleys—is called its relief.

Id., p. 24.

44. Elevations in mass, and linear elevations.

45. A difference in altitude of no more than 330 feet, is sufficient to produce a difference in temperature of 1° Fahrenheit, being equivalent to a difference of seventy miles in latitude. An increase in altitude of but a few thousand feet, therefore, changes entirely the character of a region, like a removal of it from torrid to temperate latitudes, or from temperate to frigid. The relief also controls the drainage of a continent, and influences to a certain extent the direction and character of the winds, and the distribution of rain.

Id., p. 24.

46. Plains cover nearly one-half of the land surface of the earth. In the Eastern continent they lie mainly in the north; in the Western they occupy the central portions.

Houston's Phys. Geog., p. 40.

47. Alluvial plains are formed of materials deposited

by rivers upon overflowed lands. Marine plains, so called because they seem to have been formed under sea water, and resemble the sandy bottom of an ancient ocean. Undulating plains have the surface varied by swells of greater or less elevation, but rarely above the general level.

Guyot's Phys. Geog., p. 24.

48. Plateaus, also called Table-lands and High Plains, are tracts, either level or diversified by hill and vale, having an elevation of more than 1,000 feet above sea level.

Cornell's Phys. Geog., p. 16.

49. In a mountain chain, the crest or summit of the range separates into a number of detached portions, called peaks; below the peaks the entire range is united in a solid mass.

Houston's Phys. Geog., p. 41.

50. A mountain system is a name given to several connected chains or ranges.

Id., p. 40.

51. Most mountain chains seem to have been produced by tremendous lateral pressure in portions of the earth's crust, causing either long folds, or deep fissures with upturned edges rising into high ridges, the broken strata forming ragged peaks.

Guyot's Phys. Geog., p. 26.

52. There are two distinct types of mountain chains—mountains by folding, which are generally of moderate elevation; and mountains by fracture, to which belong the highest chains of the globe.

Id., p. 26.

53. Valleys are either longitudinal or transverse.

Warren's Phys. Geog., p. 20.

54. The great dividing ridges, from which the conti-

nent, as a whole, slopes in opposite directions, may be called the main axis of the continent. The less highlands, separating into opposite slopes the part of the continent in which they are situated, form a secondary axis.

Guyot's Phys. Geog., p. 30.

55. All the long, gentle slopes descend towards the Atlantic Ocean and its prolongation, the Arctic; while all the short and rapid slopes are directed towards the Pacific, and its dependent, the Indian Ocean, the highest lands being adjacent to the shores of the greatest oceans.

Guyot's Phys. Geog., p. 42.

56. Of the 53,000,000 square miles of land, nearly 3,000,000, or about one-seventeenth, is composed of islands.

Houston's Phys. Geog., p. 36.

57. Islands are either continental or oceanic.

Id., p. 36.

58. Continental islands are those that lie near the shores of continents:

Id., p. 36.

59. From the close resemblance they generally bear to the geological structure of the mainland, they are probably but continuations of the neighboring mountain ranges, or continental elevations. They may therefore, be regarded as the projections of submerged portions of the neighboring continents. They have in general, the same lines of trend as the shores of the mainland.

Id., p. 36.

60. Oceanic islands comprise those far away from the continents.

Id., p. 38.

61. Isolated oceanic islands are mainly of two kinds, the volcanic and the coral.

Id., p. 38.

62. Continental islands, as a rule, are larger than oceanic islands. *Id.*, p. 37.

63. The rocks which make up the body of the continents and continental islands—sandstone, slate, granite, and the various metamorphic rocks—are entirely wanting in oceanic islands. The latter are composed either of volcanic substances, or of limestone.

Guyot's Phys. Geog., p. 43.

64. Though of a great variety of shapes, they agree in one particular, viz.: They consist of a low narrow rim of coral rock, enclosing a body of water called a lagoon.

Houston's Phys. Geog., p. 38.

65. Reef-building polyps do not live below the depth of 100 or 120 feet, and hence require a foundation near the surface. This is furnished by submarine mountains and plateaus, or the slopes of volcanic cones which form the high islands.

Guyot's Phys. Geog., p. 44.

66. According to Dana, the reef-forming coral polyp is not found in regions where the mean annual temperature of the waters exceeds 68° Fahr. Coral islands are therefore confined to those parts of tropical waters where the depth does not greatly exceed 100 feet, and which are protected from cold ocean currents, from the influence of fresh river waters, and are remote from active volcanoes.

Houston's Phys. Geog., p. 39.

67. By disintegrating and rearranging the materials of the earth's crust, it was the principal agent in shaping what is now the solid land. It is equally indispensable in carrying on the processes of vegetable and animal life, as it forms the larger part of all organized bodies.

Guyot's Phys. Geog., p. 47.

68. Water is a liquid, composed of two gases, oxygen and hydrogen, chemically combined in the ratio, by weight, of eight to one.

Id., p. 47.

69. Water contracts in volume with a diminution of its temperature, until reduced to 39.2° Fahr., where its density is greatest. Below this temperature it expands.

Id., p. 47.

But for this curious exception in the physical properties of fresh water, at least three-fourths of the habitable globe would be incapable of sustaining its present life.

Houston's Phys. Geog., p. 54.

70. The great reservoir of terrestrial waters is the sea.

Guyot's Phys. Geog., p. 47.

71. By slow but constant evaporation the water is lifted into the atmosphere in the form of vapor which, borne by the winds to the continents, is there condensed and falls in beneficent rains.

Id., p. 47.

72. The water which issues from the ground as springs, which is derived from the melting of ice or snow, or which drains directly from the surface after rainfall, runs down the slopes of the land, and collects in the depressions formed by the intersection of the slopes, in rills or rivulets, which at last combine in larger streams, called rivers.

Houston's Phys. Geog., p. 58.

73. Springs are most numerous in and around mountainous regions.

Guyot's Phys. Geog., p. 48.

74. The temperature of a spring depends much on that of the strata through which its waters pass. Some

springs are icy cold, particularly in mountain-regions. Others, coming from considerable depths are warm, hot, and even boiling; their heat is attributed in some cases to volcanic, and in others to chemical, action.

Cornell's Phys. Geog., p. 36.

75. Rivers that discharge their waters into the same ocean or its arms, constitute what is called a river-system. Four systems, the Atlantic, Arctic, Pacific and Indian, embrace all the rivers of the globe, except a few which are absorbed in the sand, and others that empty into certain inland seas, or lakes not connected with the ocean, whose waters are carried off by evaporation.

Id., p. 39.

76. The entire area of land which drains into the river system is called its basin.

Houston's Phys. Geog., p. 58.

77. The ridge or elevation which separates two opposite slopes, is called a water-shed.

Id., p. 58.

78. The amount of water transported by a stream is by no means proportionate to the extent of its basin, nor to the length of its course, but depends on the amount of rain falling upon the area drained, and the ratio of evaporation to rainfall throughout the basin. Extensive forests in a river basin augment the volume of the water, for they both increase the rainfall and retard the evaporation of water from the soil.

Guyot's Phys. Geog., p. 48.

79. A deep gorge, ravine or gulch between high and steep banks, worn by water courses.

Webster's Unabridged Dictionary.

80. Deltas and estuaries are terms applied to different forms of river-mouths. A delta is formed by the detritus or earthy material which the river carries

along from the upper part of its basin, and which, owing to the decrease of velocity it deposits near the mouth.

Warren's Phys. Geog., p. 38.

81. The wearing away by rivers of the rock-materials over which they flow, is called erosion.

Id., p. 37.

82. Lakes are bodies of water collected in depressions of the land.

Id., p. 41.

83. Mountain Lakes are valleys or chasms filled by streams. They are long and narrow, rarely of extensive area, but often of great depth.

Guyot's Phys. Geog., p. 51.

84. They form reservoirs, which, receiving the surplus, waters in time of freshets, equalize the flow of rivers and prevent destructive inundations. In their basins the wild mountain torrents find rest and the muddy waters deposit their sediment, and flow out pure and transparent with a gentle current.

Guyot's Phys. Geog., p. 51.

85. The surfaces of the continents having been the beds of the primeval oceans, the presence of salt in the soil is a natural consequence. Fresh water streams and lakes were formed only after the soil had been thoroughly washed by rains, and the salt carried away by streams into the ocean. If the streams receiving the substances washed from the soil by the rainfall, do not flow away to the ocean, but enter inland basins without outlet, the lakes formed in those basins will necessarily be salt.

Id., p. 51.

86. Lakes are most numerous in the central and northern portions of Asia, Europe, and North Ameri-

ca. The southern continents, except Africa, have comparatively few.

Id., p. 52.

87. The waters of the sea are separated by the lands into three great oceans, which are the counterparts of the land masses.

Id., p. 59.

88. The Atlantic and Pacific Oceans are subdivided each having a northern and a southern basin, corresponding to the northern and southern continents. The Indian Ocean has only a southern basin; but the vast depression between Asia and Europe, in the bottom of which lie the Caspian and Aral Seas, may be considered as, in certain sense, its complement. The Arctic is properly a continuation of the Atlantic; The Antarctic, also, is not properly a separate ocean but is the common centre from which the three great basins radiate.

Id., p. 59.

89. The Pacific is oval in outline and broadly open at the south; but is nearly closed at the north.

Id., p. 59.

90. The Atlantic basin has been likened by Humboldt to a long valley, with approximately parallel sides. This is the only basin widely open at the north and, stretching from pole to pole, it forms the only complete channel for the interchange of polar and equatorial waters.

Id., p. 59.

91. The three great ocean basins differ in regard to the position and character of the branches, by which the coasts of the continents are indented.

Id., p. 59.

92. Coast waters may be classified, according to their form and their position in respect to the adjacent

lands, as inland seas, border seas, and gulfs or bays.

Id., p. 59.

93. Little is known, in detail, in regard to the conformation of the bottom of the sea. But numerous soundings, both in shallow shore waters and in the deep sea, have given us an approximate idea of the nature of the beds of the Atlantic Ocean, the Mediterranean Sea, the Indian Ocean, and the Red Sea.

Id., p. 59.

The bed of the ocean, though diversified like the surface of the land, contains fewer irregularities. Numerous soundings show that it extends, for immense distances, in long undulations and slopes. Its plateaus and plains, therefore, are of great size, compared with those of the continents. Submerged mountain ranges occur mainly along the shores, and belong, properly, to the continental systems of elevations.

Houston's Phys. Geog., p. 67.

94. In the absence of soundings, ocean depth has been calculated from the velocity of the tide-wave and earthquake waves crossing it, which depends upon the depth of the basin in which the waves move.

Guyot. p. 60.

95. Observations thus far made justify the conclusion that the greatest depths of the sea are from 25,000 to 30,000 feet, about equivalent to the greatest heights upon the continents.

Id., p. 60.

96. Waves are ridges of water, produced by the friction of the winds on the surface. The stronger the wind, the higher the waves rise, the farther they are apart, and the deeper the trough between them.

Cornell's Phys. Geog., p. 32.

97. The advance of the wave is the communication of the wave movement to successive portions of

the sea ; and not, to any considerable extent, except in shallows, an onward movement of the water itself.

Guyot's Phys. Geog., p. 61.

98. When waves, advancing towards the shore reach the shallows, the motion is retarded at the bottom by friction; and the top, moving on without support, curls over and breaks in foam upon the beach; or in very shallow seas, it may break at a considerable distance from the shore.

Id., p. 61.

99. Tides are the periodical risings and fallings of the water, caused by the attraction of the sun and moon. The alternate risings and fallings succeed each other with great regularity, and consume about six hours each. Unlike waves, tides affect the waters of the ocean to great depths.

Houston's Phys. Geog., p. 69.

100. The rising of the water is called flood tide ; the falling, ebb tide.

Id., p. 69.

101. Tides are produced by the attraction of the moon and sun,—principally that of the former,—acting with different degrees of force on different parts of the earth.

Cornell's Phys. Geog., p. 33.

102. The moon attracts both the land and the sea; but the particles of the latter being free to move, the waters are drawn towards the attracting body; and where its influence is most powerful, are lifted up above the normal curve of the surface of the sea. Thus is formed a vast swell, or *tide wave*, upon the hemisphere turned towards the moon.

Guyot's Phys. Geog., p. 61.

103. When the sun and moon act together, on the same hemisphere of the earth, the tidal wave is higher

than usual. The flood tides are then highest, and the ebb tides lowest. These are called spring tides. They occur twice during every revolution of the moon—once at full, and once at new moon.

When the sun and moon are 90° apart, or in quadrature, each produces a tide on the portion of the earth directly under it, diminishing somewhat that produced by the other body. High tide then occurs under the moon, while the high tide caused by the sun becomes, by comparison, a low tide. Such tides are called neap tides.

Houston's Phys. Geog., p. 79.

104. The height of the tide depends on local circumstances. In the midst of the Pacific, it is scarcely more than two feet, which may be considered its normal level. But when dashing against the land, or forced into deep gulfs and estuaries, the accumulating tide waters sometimes reach a great height.

Guyot's Phys. Geog., p. 64.

105. Differences in level, produced by high tides cause currents which vary in force and direction with the condition of the tide, producing, in some cases, dangerous whirlpools. The famous Maelstrom, off the coast of Norway, is but a tidal current. Such is, also, the famous whirlpool of Charybdis, in the Strait of Messina, and many others of less note.

Id., p. 64.

106. The Ocean Currents are vast rivers in the sea, which move on steadily through water comparatively at rest, and are often different from the latter in color and temperature. Some are hundreds of miles broad, thousands of feet deep, and have a course embracing the larger part of the ocean in which they move.

Id., p. 65.

107. The main causes of these vast movements in the ocean are found in the winds, the excessive evaporation within the tropics which tends to lower the level of the water there, and the differing temperatures of polar and equatorial regions. The cold waters of the higher latitudes, being heavier, tend constantly to flow into the warmer waters of the equatorial seas; and the latter, being displaced by the former, flow away as surface currents towards the poles.

Id., p. 65.

108. Polar, Equatorial, and Return Currents.

Id., p. 65.

109. The Polar and Return Currents, were they acted upon by no external force, would move in the line of the meridians, taking the shortest course between the Poles and the Equator. Both are, however, deflected from this course by the unceasing action of the earth's rotation,—the Polar Currents, as they advance, tending more and more towards the west, and the Return Currents towards the east; and their directions are still farther modified by the forms of the basins of the several oceans, and the influence of the prevailing winds in the different zones.

Id., p. 65.

110. In the economy of the globe, the atmosphere is of the greatest importance. It supplies animals and plants with air, retains and modifies the solar heat, and carries moisture over the surface of the land, where it descends as rain or snow. Without the atmosphere the earth would be a barren and lifeless waste.

Warren's Phys. Geog., p. 50.

111. The atmosphere is a mechanical mixture of oxygen and nitrogen, in the proportion, by volume, of 21

parts of the former to 79 of the latter; with a very small quantity of carbonic acid, and more or less of watery vapor held in suspension.

Guyot's Phys. Geog., p. 68.

112. Calculations based upon the diminution of pressure with the height, estimate it at from 45 to 50 miles; others, based on the duration of twilight, at distances varying from 35 to 200 miles.

Houston's Phys. Geog., p. 79.

113. It will be seen that one half of the entire atmosphere, by weight, is condensed within $3\frac{2}{5}$ miles—about 18,000 feet—of the sea level; and fully two-thirds are below the level of the summit of the highest mountains. This fact has an important bearing, both on the influence of mountains in directing or modifying the course of the winds, and on the general climatic phenomena of the globe.

Guyot's Phys. Geog., p. 69.

114. The physical agencies acting through the atmosphere upon organic life, constitute *climate*, of which heat and moisture are the essential elements, the winds being the medium of circulation.

Id., p. 70.

115. The general climatic conditions belonging to a region, and depending upon its latitude, constitute its *astronomical climate*.

Id., p. 70.

116. The climate belonging to a place, by its latitude is usually modified, to a greater or less extent, by secondary physical agencies,—among which are the general atmospheric and marine currents, the differing power of land and water to absorb and radiate heat, and the altitude of the surface. The astronomical climate of a region thus modified, is its real, or *physical climate*.

Id., p. 70.

117. The amount of heat produced by the sun upon the earth's surface, is greatest near the Equator, and diminishes gradually towards the Poles.

Id., p. 70.

118.

(1) In the Equatorial regions the sun's rays are perpendicular to the surface of the sphere, and there produce their maximum effect; but, on account of the curved outline of the globe, they fall more and more obliquely with increasing latitude, and the intensity of action diminishes proportionately. At the Poles, they are tangent to the surface, and their effect is zero.

(2) The area on which a given amount of heating power is expended is least at the Equator, consequently the resulting heat is greatest.

(3) The absorption of heat by the atmosphere as the sun's rays pass through it, is least where they fall perpendicularly,—that is in the Equatorial regions, and increases, with their increasing obliquity, towards the Poles.

Id., p. 70.

119. In consequence of the inclination of the axis, the declination of the sun, or its angular distance from the Equator, varies with the advance of the earth in its orbit, causing periodical variations in the length of day and night and consequently, in temperature.

Id., p. 70.

120. The general deviations from the astronomical climate occur chiefly in the middle latitudes.

Id., p. 72.

121. Humboldt devised a series of lines known as *isothermals*, or lines of equal average temperature, in order to illustrate the actual distribution of heat, irrespective of latitude. Each line connects places having the same mean temperature, either of the year, a

season, or any one month. *Annual isothermals* show the average temperature belonging to the places which they connect; the *monthly* and *season isothermals* show the distribution of heat throughout the year.

Id., p. 72.

122. The extreme deviations occur on the coasts of the north Atlantic, western Europe being very much warmer than eastern America in corresponding latitudes.

Id., p. 72.

123. In general the climate of the oceans is characterized by uniformity, the difference between the summer and the winter temperature being comparatively slight. The continental climate, on the contrary, is characterized by sudden changes, and extremes, the difference between the summer and the winter temperature, in middle and high latitudes, being excessive.

Id., p. 73.

124. Winds are masses of air in motion. They somewhat resemble currents in the ocean, and result from the same causes, viz.: the disturbance in the equilibrium of the atmosphere by heat, and by the rotation of the earth.

Houston's Phys. Geog., p. 83.

125. As Constant, or those which blow continually in one direction, as, the Trade-winds; Periodical, or those which blow at certain periods only, as the Monsoons, Land and Sea Breezes, and Variable, or those which occur at irregular intervals.

Cornell's Phys. Geog., p. 50.

126. The law of atmospheric circulation gives rise to three distinctly marked wind zones, on each side of the Equator; namely:

(1) The zone of constant winds, extending to latitude 25° or 30° .

(2) The zone of variable winds, with alternate polar and equatorial currents dominating, extending thence to latitude 60° , or near the polar circles; and

(3) The zone of prevailing, though not constant polar winds.

Guyot's Phys. Geog., p. 77.

127. The boundary between the northeast and southeast trades, is formed by the zone of the ascending current, from 4° to 6° in breadth, adjacent to the thermial Equator. The mean position of this zone is in the Atlantic, between 3° and 9° north latitude; in the Pacific, between 4° and 8° north. In the continents it is usually found between 3° south, and 4° north latitude. Here the ascending current overpowers the horizontal; and, as the upward motion is not perceptible to the observer, the atmosphere seems to be in a state of rest; hence this belt is designated the Zone of Equatorial Calms.

Id., p. 77.

128. The Trade-winds, so called from their influence on the trade of all maritime nations.

Cornell's Phys. Geog., p. 50.

129. The rotation of the earth on its axis gives the lower currents an easterly, and the upper currents a westerly, direction.

Id., p. 50.

130. Monsoons, and Land and Sea Breezes. The most remarkable variable winds are Whirl-winds and Hurricanes, Typhoons, or Cyclones.

Id., pp. 50 and 51.

131. The quantity of moisture in the air depends on its temperature, and its vicinity to the sea. The amount of precipitation regularly decreases as we pass from the Equator to the Poles, and from the coasts of the continents towards the interior.

Houston's Phys. Geog., p. 93.

132. Clouds or fogs result whenever two bodies of air of different temperatures are mingled, especially if, as is generally the case, the warmer of the two is the moister. *Id.*, p. 94.

133. Dew is the moisture collected during the night in the form of small drops of water, on the surface of plants and other bodies. Frost is frozen dew. Snow is frozen moisture produced in the same manner as rain. It can only fall in regions where the temperature of the air is at or below the freezing point. Hail is frozen rain.

Warren's Phys. Geog., pp. 60 and 62.

134. The rainless regions of the Old, as well as the New World, lie almost entirely within the zones of the Trade-winds. *Id.*, p. 63.

There are certain regions of the globe, estimated in all at $5\frac{1}{2}$ millions of square miles, in which rain never falls. This is, for the most part, owing to the fact that the winds are deprived of their moisture before reaching these districts, either by encountering some mountain-chain or by blowing over extensive arid tracts.

Cornell's Phys. Geog., p. 56.

135. The most remarkable for violence, and for the regularity of their course, are the hurricanes of the West Indies and of Mauritius in the Indian Ocean; the typhoons of the South China Sea; and the cyclones of the Gulf of Bengal.

Guyot's Phys. Geog., p. 82.

136. Glaciers are immense masses of ice and snow, which move with extreme slowness down the higher mountain valleys or slopes. Their upper parts are formed of soft snow; their lower portions of clear hard ice.

Houston's Phys. Geog., p. 100.

137. The weight of the huge snow fields, which form above the snow line, presses the mass slowly down the slopes. The pressure, due to the weight of the superincumbent layers, but especially that which is produced when the mass is forced through a contraction in the valley, squeezes out the confined air, to which snow, in great part, owes its white color, and the lower part of the glacier thus becomes changed into a compact mass of pure ice. The alternate thawing and freezing to which the mass is subjected below the snow line, also contributes to the change from snow to ice.

Id., p. 100.

138. The best known, and probably most remarkable glacier region is that of the high Alps, in the heart of which are Mount Blanc, Monte Rosa, and the Bernese Alps.

Guyot's Phys. Geog., p. 95.

139. When they have deserted their former valleys, evidences of their previous existence are to be found in the long lines of unstratified rocks and mud left by their moraines in their boulders, and especially in the deep grooves, or scratches, cut in the bottom or sides of the valleys by imbedded rocks. These scratches are parallel, and show the direction of the motion.

Houston's Phys. Geog., p. 101.

140. The lower limit of perpetual snow, called the snow line, is found, within the tropics, about three miles above the sea level. In temperate latitudes it occurs at the height of a little less than two miles; and at the northern limit of the continents, it is about half a mile above the level of the sea, or perhaps, even less than this.

Guyot's Phys. Geog., pp. 92 and 93.

141. Lightning results when the electricity of a cloud discharges to the earth or a neighboring cloud.

The discharge is due to the union of the positive and negative electricities of the cloud and neighboring object, and is attended by a vivid spark, called lightning.

Houston's Phys. Geog., p. 102.

Thunder is caused by the violent displacement of the air produced by the passage of the lightning and its rush back again into the partial vacuum created.

Warren's Phys. Geog., p. 65.

142. St. Elmo's fire and the Aurora Borealis and Aurora Australis.

Guyot's Phys. Geog., p. 96.

143. The plants of any section of country taken together are called its flora.

Houston's Phys. Geog., p. 110.

144. The floras of different parts of the earth differ widely, by reason of differences in heat, moisture, light, slope, and soil,—particularly by the first two.

Cornell's Phys. Geog., p. 63.

145. The influence of heat and moisture are noticed as we pass from the Equator to the Poles, or from the base of a tropical mountain to the summit. Thus arises a horizontal and a vertical distribution of vegetation.

Houston's Phys. Geog., p. 110.

146. The greatest luxuriance of vegetation is found in the equatorial regions, where heat and moisture are most abundant.

Id., p. 110.

147. The observer, passing from the base to the summit of high mountains, in any latitude, finds variations in the character of the plants similar to, though not identical with, those observed in advancing to higher latitudes.

Guyot's Phys. Geog., p. 102.

148. The animals found in any region of country are called its fauna.

Houston's Phys. Geog., p. 120.

149. As a rule, the luxuriance and diversity of animal life decrease as we pass from the Equator to the Poles. A similar decrease is noticed in passing from the coasts of the continents towards the interior.

Id., p. 120.

150. In marine animal life, the law of distribution is reversed, both the number and size of the species increasing from the Equator towards the Poles. This is probably due to the more equable temperature of the ocean in high latitudes.

Id., p. 120.

151. Large bodies of water, deserts, or mountain ranges, mark the boundaries of regions of animals as well as of plants; but the influence of temperature is so important, that even when these natural barriers are wanting, the horizontal range of animals is sharply marked by the isothermal lines.

Id., p. 121.

152. Man, and his faithful friend, the dog, form an exception to most other animals in this respect.

Id., p. 121.

153. The distribution of heat, moisture, and vegetation, forms the true basis for the distribution of animal life.

Id., p. 120.

154. A careful study of the map of the distribution of animal life, will show that each continent possesses a fauna peculiar to itself. This arises, generally, from some clearly traceable peculiarity in the distribution of the heat and moisture, or in the nature of the vegetation.

Id., p. 121.

155.

(1.) A comparison of the different tribes and races of men, reveals the fact of a gradual modification of types, on every side of the central or highest race, until, by insensible degrees, the lowest and most degraded forms of humanity are reached.

(2.) In the central race,—among the individuals of which there is greater diversity in form, features, temperament and mental characteristics, than in any other,—there are persons of pure blood who show, in a less degree, almost every distinguishing feature of each of the lower races.

Guyot's Phys. Geog., p. 118.

(3.) Since the earlier myths and legends of nearly all nations resemble each other, it is fair to infer that their remote ancestors originally dwelt together. The strongest proof of unity, however, is found in the very close resemblance in the languages of many widely separated races.

Houston's Phys. Geog., p. 126.

156. The Caucasian, the Mongolian, and the Negro.

Id., p. 126.

157. The Malay, or Brown Race; the Australian; and the American or Copper-Colored. They are regarded as modifications of the Mongolian Race.

Id., p. 128.

158. The ever varying external conditions.

Guyot's Phys. Geog., p. 114.

159. The law of perfection of type, in man, forms an exception to that observed in the lower orders of creation. The human family appears in its highest physical perfection, not within the Tropics, but in the Temperate Zone, in Western Asia, the geographical

center of the Old World. The type degenerates gradually with increasing distance, in all directions from this geographical center; until, in the remotest regions of the globe, are found the ugliest, and most deformed specimens of the human family.

Id., p. 118.

160. The White race seems to be the normal race from which the others have gradually deviated.

Id., p. 118.

QUESTIONS ON CIVIL GOVERNMENT.

1. Define government.
2. What is the necessity of government?
3. Name and define the kinds of government.
4. What kind of government existed in the American Colonies prior to the Revolution?
5. Define these different forms of government.
6. What are laws?
7. What is a state?
8. Define civil government.
9. What is a Constitution?
10. When did the present Constitution of the United States go into operation?
11. What is the introductory paragraph of the Constitution called?
12. Repeat the Preamble.
13. What is the object of the Preamble?
14. What were the purposes for which the Constitution was adopted?
15. Into how many departments is the government of the United States divided?
16. Define these three departments.
17. To what does Article I. of the Constitution relate?
18. Give Section I., of Article I.
19. What advantage is there in dividing the legislative body into two branches?

20. How often are the members of the House of Representatives chosen?

21. By whom are they chosen?

22. Why is a comparatively short term of service fixed for the House of Representatives?

23. How old must a Representative be?

24. What other qualifications are necessary?

25. In what manner are Representatives and direct taxes apportioned among the several States?

26. Repeat that part of the Apportionment clause which limits the number of Representatives.

27. How are the vacancies in the Representation from any State to be filled?

28. How are the Speaker and other officers of the House chosen?

29. What important power is exercised by the House?

30. What is the power of impeachment?

31. Are impeachments tried by the House?

32. Of how many members is the Senate composed?

33. How are the Senators chosen?

34. How do they differ in this respect from the Representatives?

35. For how long are the Senators chosen?

36. How do they differ in this respect from the Representatives?

37. Why is a comparatively long term of service fixed for the Senators?

38. Repeat that part of the Constitution which relates to the arrangement of Senators into classes.

39. How are vacancies in the Senate filled?

40. If the vacancies happen during the recess of the Legislature of the State, how shall they be filled?

41. What are the qualifications of the Senators?

42. Who is constituted the Presiding Officer of the Senate?

43. When is he entitled to vote?

44. How are the other officers of the Senate chosen?

45. Who shall preside in the Senate on the trial of the President of the United States?

46. What is necessary in order to convict a person on impeachment?

47. How is the judgment, in cases of impeachment, limited?

48. Are those convicted on impeachment liable to no other punishment?

49. In what particulars shall the Legislature of each State regulate the election of Members of Congress?

50. What power may Congress exercise in the matter?

51. How often shall Congress assemble?

52. What day is fixed for the meeting of Congress?

53. Who are to judge of the right of any one to a seat in Congress?

54. What number of each House of Congress is necessary to constitute a quorum?

55. Who determines the rules of proceeding in Congress?

56. What means has each House for enforcing its rules?

57. How is the publicity of the proceedings of Congress secured?

58. How is the responsibility of individual members secured?

59. Repeat the clause which relates to revenue bills.

60. After a bill has passed both Houses of Congress, what must be done with it?
61. What is still necessary before it can become a law?
62. What must the President do if he does not approve it?
63. What is the next thing to be done with it?
64. Repeat that clause which limits the time that the President may retain a bill.
65. What powers are granted to Congress?
66. What powers are denied to Congress?
67. What powers are denied to the States?
68. In whom is the Executive power of the United States vested?
69. For how long a term is the President elected?
70. What other executive officer is chosen at the same time and for the same period?
71. How are Electors appointed?
72. What persons are disqualified from being appointed Electors?
73. What is the mode of choosing the President and Vice-President?
74. What number of Electoral votes is necessary to an election?
75. What is to be done, in case no candidate has a majority of the whole number of votes?
76. In what manner shall the votes of the House be taken in choosing the President?
77. What number of States is necessary to a choice by the House?
78. Repeat that clause of the Constitution which defines the qualifications of the President.
79. When does the office of the President devolve on the Vice-President?

80. What does the Constitution say in reference to the compensation of the President?

81. What are the words of the oath administered to the President?

82. What are the powers and the duties of the President?

83. Who are liable to impeachment?

84. Who are meant by officers of the United States?

85. Does this include members of Congress?

86. What officers of the United States are there besides civil officers?

87. Are the officers of the Army and Navy liable to impeachment?

88. Who are the persons chiefly meant besides the President and Vice-President?

89. For what offences are these officers liable to impeachment?

90. What is the penalty in case of impeachment?

91. Where is the Judicial power of the United States vested?

92. What are the inferior courts called?

93. In what does treason against the United States consist?

94. What is necessary in order to convict a person of treason?

95. What provision is made in regard to the punishment of treason?

96. What has Congress declared to be the punishment for treason against the United States?

97. What limit is placed to the punishment of treason?

98. What is meant by an attainder of treason?

99. What is meant by corruption of blood?

100. What shall the United States guarantee to every State in this Union?

ANSWERS TO QUESTIONS ON CIVIL GOVERNMENT.

1. The act of governing; the exercise of authority; the administration of laws; control; direction; restraint; regulation; as, civil, church, or family government.

Webster.

2. Governments are necessary evils. Their necessity arises out of the selfishness and stupidity of mankind.

Politics for Young Americans, Nordhoff, p. 20.

3. Governments are of different kinds: Despotism, where the will of one man is the law; Oligarchies, where a few make the laws for those subordinate to them; and free or popular governments, where the laws are made by the people, or rather by persons they select for that purpose.

Id., p. 20.

4. There were originally three different forms of government in the colonies, namely: The charter, the proprietary, and the royal governments.

King's Commentary on the Federal Constitution, p. 355.

5. The charter governments were composed of a governor, deputy-governor, and assistants elected by the people. In the proprietary governments, the power of appointing officers and making laws rested in the proprietors, by the advice and consent, generally of the

freemen. In the royal governments the governor and council were appointed by the crown, and the people elected representatives to the colonial legislature.

Id., p. 356.

6. Laws are expressions of the controlling will, which become rules of action for the governed.

Martin's Civil Government, p. 13.

7. A state is a community of persons living within certain limits of territory, under a permanent organization, which aims to secure the prevalence of justice by self-imposed laws.

Id., p. 14.

8. Civil government is control by law, exercised by a state over its members.

Id., p. 14.

9. The principles or fundamental laws which govern a state or other organized body of men, and are embodied in written documents, or implied in the institutions and usages of the country or society; organic law.

Webster.

10. In September, 1788.

11. The Preamble.

12. "We, the People of the United States, in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defence, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America."

13. The object of the Preamble is to set forth the purposes for which the Constitution was adopted.

14.

1st. To form a more perfect union.

- 2d. To establish justice.
- 3d. To insure domestic tranquillity.
- 4th. To provide for the common defence.
- 5th. To promote the general welfare.
- 6th. And to secure the blessings of liberty to ourselves and our posterity.

15. Into three: Legislative, Executive and Judicial.

16. The Legislative makes the laws, the Executive carries the laws into effect, and the Judicial interprets the laws.

17. To the Legislative Department.

18. "All Legislative powers herein granted, shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

19. The two Houses of Congress act as a check upon each other.

20. Every second year.

21. By the people of the several states.

22. That they may come more frequently and more directly under the supervision of popular opinion.

Hart's Exposition of the Constitution, p. 18.

23. No person shall be a Representative, who shall not have attained to the age of twenty-five years.

24. He must have been seven years a citizen of the United States, and must, when elected, be an inhabitant of that State in which he is chosen.

25. According to their respective numbers.

26. "The number of Representatives shall not exceed one for every thirty thousand, but each State shall have at least one Representative."

27. The Executive of that State shall issue writs of election to fill such vacancies.

28. By the House itself.

29. The House has the sole power of impeachment.

30. It is the right which the Representatives have to bring an accusation against high officers of government, for maladministration of office.

Hart's Exposition of the Constitution, p. 23.

31. No. They are tried by the Senate.

32. Of two from each State, or seventy-six in all.

33. By the Legislatures of the several States.

34. The Representatives are chosen by the people of the States.

35. For six years.

36. The Representatives are chosen for only two years.

37. That they may serve as a check upon the sudden fluctuations of popular opinion, to which the other branch of the Legislature is liable.

Hart, p. 24.

38. "Immediately after they shall be assembled, in consequence of the first election, they shall be divided, as equally as may be, into three classes. The seats of the Senators of the first class shall be vacated at the expiration of the second year; of the second class, at the expiration of the fourth year; and of the third class, at the expiration of the sixth year; so that one-third may be chosen every second year."

39. By the appointment of the Legislature of the State in whose representation the vacancy may exist.

40. The Executive of the State may make temporary appointments until the next meeting of the Legislature, which shall then fill such vacancies.

41. (a.) Must be thirty years of age; (b.) Must have been a citizen of the United States nine years; (c.) and must at the time of his election, be an inhabitant of that State for which he shall be chosen.

42. The Vice-President of the United States.
43. Only when the Senate is equally divided.
44. "The Senate shall choose their other officers, and also a President *pro tempore*, in the absence of the Vice-President, or when he shall exercise the office of President of the United States."
45. The Chief Justice.
46. The concurrence of two-thirds of the members present.
47. It shall not extend further than to removal from office, and disqualification to hold office under the United States.
48. The party convicted shall, nevertheless, be liable and subject to indictment, trial, judgment, and punishment, according to law.
49. The times, places and manner, of holding elections for Senators and Representatives, shall be prescribed in each State by the Legislature thereof.
50. But the Congress may at any time, by law, make or alter such regulations, except as to the places of choosing Senators.
51. The Congress shall assemble at least once in every year.
52. On the first Monday in December, unless they shall by law appoint another day.
53. Each house shall be the judge of the elections, returns, and qualifications, of its own members.
54. A majority.
55. Each House may determine the rules of its proceedings.
56. Each House has the power to punish its members for disorderly behavior; and, with the concurrence of two-thirds, expel a member.
57. By compelling each House to keep a journal of its proceedings, and to publish the same from time to time.

58. By requiring the yeas and nays to be taken on any question, at the desire of one-fifth of the members present.

59. "All bills for raising revenue shall originate in the House of Representatives; but the Senate may propose or concur with amendments, as on other bills."

60. It must be presented to the President.

61. The President must approve and sign it.

62. He shall return it, with his objections, to that House in which it shall have originated, who shall enter the objections at large on their journal, and proceed to reconsider it.

63. If, after such reconsideration, two-thirds of that House shall agree to pass the bill, it shall be sent, together with the objections, to the other House, by which it shall likewise be reconsidered, and if approved by two-thirds of that House, it shall become a law.

64. "If any bill shall not be returned by the President within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law, in like manner as if he had signed it, unless the Congress, by their adjournment, prevent its return, in which case it shall not be a law."

65. Congress shall have power (1) To lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defence and general welfare of the United States; (2) To borrow money on the credit of the United States; (3) To regulate commerce with foreign nations, and among the several States, and with the Indian tribes; (4) To establish a uniform rule of naturalization, and uniform laws on the subject of bankruptcies, throughout the United States; (5) To coin money, regulate the value

thereof, and of foreign coin, and fix the standard of weights and measures; (6) To provide for the punishment of counterfeiting the securities and current coin of the United States; (7) To establish post-offices and post-roads; (8) To promote the progress of science and useful arts by securing, for limited times, to authors and inventors the exclusive right to their respective writings and discoveries? (9) To constitute tribunals inferior to the Supreme Court; (10) To define and punish piracies and felonies committed on the high seas, and offences, against the law of nations; (11) To declare war, grant letters of marque and reprisal and make rules concerning captures on land and water; (12) To raise and support armies; (13) To provide and maintain a navy; (14) To make rules for the government and regulation of the land and naval forces; (15) To provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions; (16) To provide for organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States; (17) To exercise exclusive legislation in all cases whatsoever, over such district (not exceeding ten miles square,) as may, by cession of particular States, and the acceptance of Congress, become the seat of the Government of the United States, and to exercise like authority over all places, purchased by the consent of the legislature of the State in which the same shall be, for the erection of forts, magazines, arsenals, dockyards, and other needful buildings; (18) To make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this Constitution in the Government of the United States, or in any department or officer thereof.

66. Powers denied to the United States:

(1) The migration or importation of such persons, as any of the States, now existing, shall think proper to admit, shall not be prohibited by the Congress prior to the year one thousand eight hundred and eight; but a tax or duty may be imposed on such importation not exceeding ten dollars.

(2) The privilege of the writ of *habeas corpus* shall not be suspended unless when, in cases of rebellion or invasion, the public safety may require it.

(3) No bill of attainder, or *ex-post facto law*, shall be passed.

(4) No capitation or other direct tax, shall be laid, unless in proportion to the census or enumeration, herein before directed to be taken.

(5) No tax or duty shall be laid on articles exported from any State. No preference shall be given by any regulation of commerce or revenue, to the ports of one State over those of another; nor shall vessels bound to, or from, one State, be obliged to enter, clear, or pay duties, in another.

(6) No money shall be drawn from the treasury, but in consequence of appropriations made by law; and a regular statement and account of the receipts and expenditures of all public money shall be published, from time to time.

(7) No title of nobility shall be granted by the United States: And no person, holding any office of profit or trust under them, shall, without the consent of the Congress, accept of any present, emolument, office, or title, of any kind whatever, from any king, prince, or foreign state.

67. Powers denied to the States:

(1) No State shall enter into any treaty, alliance, or confederation; grant letters of marque and

reprisal; coin money; emit bills of credit; make anything but gold and silver coin a tender in payment of debts, pass any bill of attainder, *ex post facto law*, or law impairing the obligation of contracts, or grant any title of nobility.

(2) No State shall, without the consent of the Congress, lay any imposts or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws.

(3) No Stateshall, without the consent of Congress, lay any duty on tonnage, keep troops or ships of war, in time of peace, enter into any agreement or compact with another State, or with a foreign power, or engage in war, unless actually invaded, or in such imminent danger, as will not admit of delay.

68. The Executive power shall be vested in a President of the United States.

69. For four years.

70. The Vice-President.

71. Each State shall appoint, in such manner as the Legislature thereof may direct, a number of Electors, equal to the whole number of Senators and Representatives, to which the State may be entitled in the Congress.

72. Senators, Representatives, and all persons holding any office of trust or profit under the United States.

73. The Electors shall meet in their respective States, and vote by ballot for President and Vice-President, one of whom, at least, shall not be an inhabitant of the same State with themselves; they shall name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President; and they shall make distinct lists of all persons voted for as President, and of all per-

sons voted for as Vice-President, and of the number of votes for each, which lists they shall sign, and certify, and transmit, sealed, to the seat of the government of the United States, directed to the President of the Senate. The President of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates, and the votes shall then be counted.

74. A majority of the whole number.

75. The House of Representatives shall elect a President.

76. By States; the Representation from each State having but one vote.

77. A majority of all the States.

78. No person, except a natural-born citizen, or a citizen of the United States at the time of the adoption of this Constitution, shall be eligible to the office of President; neither shall any person be eligible to that office who shall not have attained to the age of thirty-five years, and been fourteen years a resident within the United States.

79. In case of the removal of the President from office, or of his death, resignation, or inability to discharge the powers and duties of the said office, the same shall devolve on the Vice-President.

80. The President shall, at stated times receive for his services, a compensation, which shall neither be increased nor diminished during the period for which he shall have been elected, and he shall not receive within that period, any other emolument from the United States, or any of them.

81. "I do solemnly swear (or affirm), that I will faithfully execute the office of President of the United States and will, to the best of my ability, preserve,

protect, and defend the Constitution of the United States."

82.

1. The President shall be commander-in-chief of the army and navy of the United States, and of the militia of the several States, when called into the actual service of the United States; he may require the opinion, in writing, of the principal officer in each of the executive departments, upon any subject relating to the duties of their respective offices, and he shall have power to grant reprieves and pardons for offences against the United States, except in cases of impeachment.

2. He (the President) shall have power, by and with the advice and consent of the Senate, to make treaties, provided two-thirds of the Senators present concur; and he shall nominate, and by and with the advice and consent of the Senate, shall appoint ambassadors, other public ministers, and consuls, judges of the Supreme Court, and all other officers of the United States, whose appointments are not herein otherwise provided for, and which shall be established by law: but the Congress may by law vest the appointment of such inferior officers, as they think proper, in the President alone, in the courts of law, or in the heads of Departments.

3. The President shall have the power to fill up vacancies that may happen, during the recess of the Senate, by granting commissions, which shall expire at the end of their next session.

4. He shall, from time to time, give to the Congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient; he may, on extraordinary occasions, convene both Houses, or either of them, and in case of disagreement between them, with respect

to the time of adjournment, he may adjourn them to such time as he shall think proper; he shall receive ambassadors and other public ministers; he shall take care that the laws be faithfully executed, and shall commission all the officers of the United States.

83. The President, Vice-President, and all civil officers of the United States.

84. Officers deriving their appointments from the National Government.

85. No.

86. Officers of the Army and Navy.

87. They are not.

88. Heads of Departments; Judges of the Supreme Court; Marshals, Collectors, District Attorneys, etc.

89. For treason, bribery, or other high crimes and misdemeanors.

90. Removal from office, and disqualification to hold office in future.

91. In one Supreme Court, and in such inferior courts as the Congress may, from time to time, ordain and establish.

92. District Courts and Circuit Courts.

93. Treason against the United States shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort.

94. No person shall be convicted of treason, unless on the testimony of two witnesses to the same overt act, or on confession in open court.

95. The Congress shall have power to declare the punishment of treason.

96. Death by hanging.

97. No attainder of treason shall work corruption of blood, or forfeiture, except during the life of the person attainted.

98. Conviction of the crime of treason.

Hart on the Constitution.

99. One, whose blood is corrupted, can not inherit property from others, nor transmit an inheritance to his children ; his blood ceases to have any inheritable qualities.

Id.

100. The United States shall guarantee to every State in this Union a Republican form of Government, and shall protect each of them against invasion ; and, on application of the Legislature, or of the Executive (when the Legislature can not be convened), against domestic violence.

APPENDIX.

RULES TO BE OBSERVED AT EXAMINATIONS.

CONTRIBUTED BY G. DALLAS LIND.

1. Of course the teacher should always keep his person as neat and clean as possible and dress, not foppishly, not necessarily in costly clothes, but neatly, plainly and as well as his circumstances will justify. There are times when the teacher, like other persons may become careless of dress and appearance, but that time should not be when he goes to Examination. Horace Greeley was careless in dress and Henry Clay Dean is as filthy as a man can well be, but we should copy the good points and not the faults of great men. A generous use of soap and water and attention to the "real estate" which is apt to accumulate under the finger nails are points worthy of the teacher's notice. We were not all born with the brain of a Greeley, and therefore need other means to aid us through the world.

2. Be on hand early. Better too early than too late. Promptness is one of the unfailing signs of a good teacher. Some persons are always late, late to rise in the morning, late to bed at night, late to school, late to Church and Sabbath school, and would be late at their own funerals if they were not carried against their will. The teacher should not belong to this class. Show by your promptness at Examinations what you will probably be at your school. Learn a lesson from the man who missed the morning train.

3. Keep cool. If you get excited you cannot tell half you know. Never think of the outcome of your work, but think only of what you are to do at the present moment, knowing that the outcome will depend entirely upon how well you perform each step. Do the best you can, and do not worry about the rest. Excitement will spoil many an answer, and you will say many things you do not believe and would not say in calmer moments. Your

memory will forsake you, and you will not be able to recall the name of your grand-mother if you are scared.

4. Obey strictly the rules of the Examination. If you are seen to whisper to another or violate any of the rules laid down for you, it will be taken as evidence that you are trying to practice fraud, though your intentions may be far from any such thing. Above all things do not be tempted to use any unfair means, whatever. Your work is expected to show honestly what you are capable of doing and nothing more. Do not give the Examiner any ground for suspicion in this respect.

5. Write legibly. No one cares about puzzling his brains and wasting his time over hieroglyphics that look like antediluvian bird tracks and when deciphered possess no ethnological interest, whatever. It was no credit to Horace Greeley that there was but one man in the United States who could read his manuscript. One should cultivate the power of writing rapidly, yet plainly.

6. Be very careful about the use of capital letters, spelling and punctuation. A great many of the errors in this respect are made through carelessness, slips of the pen which may be avoided. When you have finished a subject examine your work carefully and you will be very apt to find some errors.

7. Be careful about the neatness of your manuscript. Blots and finger marks do not speak well for any one.

8. Confine your mind as closely as possible to your work. Do not let it wander off upon other subjects. This is one of the qualities of genius, to be able to concentrate the mind upon one point until it is elaborated. Yet do not present the appearance of being puzzled or weary. Sit still and work calmly and quietly, as though you knew perfectly what you were about. Do not be caught twirling your hair with your fingers, drumming on the table, or with your head resting on your hand.

9. If you are allotted a certain time on each branch, occupy all the time given you. If you get through before the time is up, review your work critically, making such corrections and additions as you may find necessary. There is much to be gained by a critical study of your own productions.

10. Do not guess at the answer of a question. "Guess work is as good as any when it hits," is the saying, but it rarely ever hits, and you would better leave the paper blank than return it filled with guesses, even though some of them may hit the mark. It is a bad habit to get into, that of guessing at things.

11. Write out as much as possible of your work. If you can tell what you know clearly and briefly in writing, it is a mark of ability. But do not be verbose. Tell what you have to tell in as few words as consistent with clearness. Be pointed in all answers to questions. Avoid ambiguity of expression. Use short sentences. Write upon the question before you and upon nothing else.

12. As far as possible, write the answer to each question on separate slips of paper, so that you can arrange them in order when you have finished. If your paper is in large sheets better tear in smaller slips. When you have arranged them in order, number the pages and fasten them together at the top. Write upon one side of the paper only.

13. On receiving your paper of questions read it over carefully. Take the easiest question first and write the answer, then the next easiest, leaving the most difficult until the last. The hardest may come first on the paper and the candidate spend the whole of his time puzzling over it, or until he gets nervous and frightened, when he will not be able to answer the others, although they may all be easy.

14. In exercises in Grammar, write out the parsing or analysis in full, abbreviating terms only. For example, in the sentence "Mary milks the cow," parse cow thus: Cow, n., com., 3rd., sing., fem., obj., object of v. milks. R., A noun or pronoun, &c.

In Arithmetic, write out the analysis of examples clearly, giving your full work on the same paper. You will be judged not so much by the correctness of your final result, as you will by the process you used to obtain it. If your analysis be correct a mistake in the figures affecting the final result will not be of so much consequence.

15. Do not study too much the week previous to the Examination. If you tax your mind too much you will not have the clearness of perception and mental power you would otherwise have. Especially do not sit up late the night before to study. Go to bed early and think as little as possible about the work of the morrow.

16. Eat a light supper the night before, and your sleep will be sounder and you will have fewer dreams, and consequently you will rise more refreshed and better able to cope with intellectual problems. Eat lightly at breakfast and dinner on Examination day. It would be well to observe this rule through life.

HINTS ON THE PREPARATION OF MANUSCRIPTS.

CONTRIBUTED BY G. DALLAS LIND.

There are comparatively few persons who know how to write a letter, and a still less number who know how to write an article for the press. Postmasters are aware of the fact that few know how to back a letter properly, and editors and publishers are painfully aware that few know how to prepare a manuscript for publication. It is humiliating, but true, that a large proportion of our teachers are remarkably deficient in such knowledge. It is something strange for the means of instruction are not wanting. Perhaps it is because there are few text-books which give the required information in a tangible and connected form. All grammars give the rules for capital letters. Spelling is taught from infancy up. Rules for punctuation are given in grammars. Yet in these three points do all most err. Works on rhetoric give the necessary information in regard to arrangement, style, etc., but the ordinary teacher does not always make use of such a text-book. Perhaps the greatest reason for this ignorance, is the lack of a feeling of the importance which should be attached to the subject. Too many scarcely ever devote a moment's thought to the matter. They write their letters and never read them over to see how they look. The teacher should make it a point in common schools and primary schools, generally to teach the use of the period and capital letters. This much can be taught to very young children. As they grow older and are able to wield the pen with some degree of facility, they can learn and pains should be taken to teach them to properly back a letter, fold, address and sign the name.

Frequent exercises should be given in writing sentences and words, until they become as familiar with the appearance of words

and sentences in manuscript as they are with the alphabet. Were teachers more interested in this branch of learning, there would be less ignorance among the masses in this respect.

We append a few rules, which, if followed, will be of benefit to the tyro in this branch:

1. In writing any kind of a manuscript which you expect other eyes to read, whether a letter of friendship or business, an article for the press, or any matter you wish to preserve, use a pen and black ink and white or light colored paper. It is a kind of insult to write to a person with a pencil, and most articles sent to the press so written, go to the waste basket.

2. Learn to write in straight lines without ruling. All paper would be better if made without being ruled. The eye should be trained to guide the hand straight across the page without the aid of ruled lines. They only mar the beauty of a written page. The custom of writing on ruled paper has spoiled most persons, so that when they come to address an envelope where there are no ruled lines, they are sure to go crooked.

3. Of course you should spell every word correctly. It is best for beginners to have a dictionary by their side when writing, and every word about which there is a doubt, should be looked up. It should be made an unpardonable sin to misspell words in composition, when there are so many dictionaries in the land. Study the rules for the use of capital letters. They are very simple and no one who pretends to any learning, or to teach, should be ignorant of them. When you have written a sentence read it over and see that you have made no slips of the pen. These are very common, such as omitting one of the final letters of a word or adding a letter to a word, omitting one of the letters when they are doubled, etc. Not only read over each sentence as you write it, but read the composition over one or more times when you are through. It is a good habit, one we have been accustomed to for a long time, to read over every paragraph, as soon as written, then every page or a number of paragraphs together. You are sure to find some errors in this way, not only slips of the pen, but errors in spelling, capitalization, punctuation, grammar, etc. Get into the habit of criticising your own work.

4. In regard to punctuation, little need be said. It is easy to learn the use of the principal point, the period. Never use long sentences. Short sentences are easily managed, long ones are not.

There is scarcely any use for the semi-colon and colon. The use of the comma is somewhat arbitrary. The most common uses, however, should not be neglected. The terms of a closely related series, or wherever the connective is omitted, or in general, wherever any word is omitted there should be a comma. Terms which are contrasted should be separated by a comma, also words used independently should be set off by commas. The uses of the exclamation and interrogation points are sufficiently obvious.

Never divide a syllable at the end of the line and place a hyphen after a syllable at the end of the line when [the remainder of the word is carried to the next line. For the use of the hyphen in compound words, you must go to the dictionary. Under score every word you wish printed in italics, with two lines if in small capitals, three lines if in large capitals.

5. In commencing a manuscript, begin the first line an inch or more from the margin of the paper. Every other line in the same paragraph should commence nearer the margin of the paper and should be kept as nearly even as possible.

You can use your own judgment about paragraphing. You may put more than one subject in the same paragraph, but it is not best to make a new paragraph where the sense is closely connected.

6. It is not a good idea to write and then copy, except for very young beginners. It is best to form a habit at once of writing correctly, and of so analyzing and arranging your subject in the mind that you may write it but once. You are almost as apt to make mistakes in copying and the time is lost. If the composition is to be an essay or any other species of writing, except an ordinary letter it is well to make an outline first, a kind of skeleton which you can elaborate and clothe at your will.

7. If you have made a mistake in spelling, correct, when possible, without re-writing the word. If it is a letter or letters omitted supply them in the line above, using a caret to show where they should be inserted. If a letter is not needed strike it out by drawing a slanting line through it. If the word can not be corrected in this way, or if the wrong word is used, draw your pen through it horizontally and re-write it in the space above, or after the word if the mistake is discovered in time.

8. If writing for publication, write on one side of the paper only. It is best to use small half sheets about the size of commer-

cial note paper. Observe rules 5 and 7 of "Rules to be observed at Examinations." (p.372.) Be especially particular to write proper names legibly. The proof reader has no means of finding out whether you mean "Mr. Baker," "Mr. Barker," or "Mr. Bunker." He may guess from the connection what other words, badly written are, but proper names he can tell nothing about. Always send your own name with the MS., not necessarily for publication but the editor must know who is responsible for the composition.

9. In writing a business letter, be brief and pointed, yet use words enough to make your meaning plain. Come at once to the point without any preliminary remarks. If an order for goods, be careful to make figures plain and always give your full name, post-office, county and State, and number of house and street, if in a city. Observe the same rule, in addressing the letter. It is best generally where sums of money are mentioned to write the amount in words and figures both, enclosing the figures in a parenthesis.

10. As a general rule in writing, use common words and such as convey your meaning best. If you have a natural talent for word painting and can use flowery and ornate language, remember that it is all out of place in any kind of business correspondence. If you wish to let your Pegasus fly take the opportunity to do so, when you write to some indulgent friend or write a love letter. The more Anglo Saxon terms you use the better. Avoid Latin and French phrases as much as possible. In writing an essay upon any subject arrange your matter in the form of an outline as suggested in rule 6, saying all you wish to under each head before commencing another. In letter writing, however, you are at liberty to say whatever comes first to your mind. A letter of friendship, may be something as you would talk to your correspondent if he were present.

11. To fold a sheet to go in an envelope you must be guided of course by the size of your sheet and envelope, but for example take the ordinary commercial note paper and the common business envelope, and you will fold it thus: Turn the bottom of the sheet up one third of the way, then turn the top third down over the bottom and middle thirds thus making three folds, and you will find it not only conveniently fit the envelope, but come exactly to the hand of the opener of the letter.

12. In addressing an envelope, never get above the median line, commencing the name near enough the left margin to get all the name and title on the same line. Never commit the unpardonable

offense of getting a person's name or name and title on different lines.

Your envelope when directed should look something like the following:

Stamp.	
MR. JOHN SMITH, DANVILLE, Hendricks Co. IND.	

PROGRAMME.

CONTRIBUTED BY F. P. ADAMS.

Every man, in whatever line of business, should work by a programme. In consideration of the importance of the teacher's work and the vast amount to be done in so short a time, the necessity of closely following a programme can not be overestimated. The teacher should write in a conspicuous place a programme for the whole school, both for recitations and study. The same programme will not answer for any two schools. The following, though evidently not perfect, is intended to be suggestive.

The school can be separated into four grades on the subject of Arithmetic. The abedarians may be called the counting class or D Grade; the class in addition will constitute the C Grade; the class in division, the B Grade; and the class in fractions, the A Grade.

We give on the next page a Daily Programme of Recitations and Studies.

EXPLANATIONS.

1. The recitations are indicated by *italic* type.
2. The time of commencing the recitations is given in the first column.
3. It is considered that the History classes can recite at the same time; also the two Geography classes at the same time.
4. It is presumed that the History and Physiology lessons can be prepared out of school. The teacher is measurably a failure if his pupils do not carry their books home with them and study them at night.
5. It is thought best to have pupils study a lesson immediately after recitation, rather than just before. The full benefit will thus be derived from the preliminary drills which are given by every successful teacher.

DAILY PROGRAMME OF RECITATIONS AND STUDIES.

TIME.		A	B	C	D
Beginning.	Continuance.	Grade.	Grade.	Grade.	Grade.
GENERAL AND RELIGIOUS EXERCISES.					
POLITICAL.					
8 : 30	13				
8 : 43	2				
8 : 45	30	<i>Arithmetic.</i>	<i>Arithmetic.</i>	<i>Arithmetic.</i>	States.
9 : 15	20	<i>Arithmetic.</i>	<i>Arithmetic.</i>	<i>Arithmetic.</i>	States.
9 : 35	15	<i>Arithmetic.</i>	<i>Arithmetic.</i>	<i>Arithmetic.</i>	Blocks, &c.
9 : 50	10	<i>Arithmetic.</i>	<i>Grammar.</i>	<i>Reading.</i>	<i>Reading and Spelling.</i>
10 : 00	15	<i>Arithmetic.</i>	<i>Grammar.</i>	<i>Reading.</i>	Blocks, &c.
10 : 15	15				
10 : 30	25	<i>Grammar.</i>	<i>Grammar.</i>	<i>Reading.</i>	Blocks.
10 : 55	15	<i>Grammar.</i>	<i>Reading & Spelling.</i>	<i>Reading & Spelling.</i>	Blocks.
11 : 10	15	<i>Reading.</i>	<i>Reading & Spelling.</i>	<i>Geography.</i>	States.
11 : 25	10	<i>Reading.</i>	<i>Reading & Spelling.</i>	<i>Geography.</i>	<i>Reading and Spelling.</i>
11 : 35	25	<i>Reading.</i>	<i>Geography.</i>	<i>Geography.</i>	Blocks.
12 : 00	60				
NOON.					
1 : 00	30	<i>Writing.</i>	<i>Writing.</i>	<i>Writing.</i>	States.
1 : 30	30	<i>Geography.</i>	<i>Geography.</i>	<i>Shelling.</i>	States.
2 : 00	15	<i>Grammar.</i>	<i>Geography.</i>	<i>Geography.</i>	Blocks.
2 : 15	15	<i>Grammar.</i>	<i>History.</i>	<i>Reading.</i>	<i>Reading and Spelling.</i>
2 : 25	15	<i>Grammar.</i>			
RECESSIONS.					
2 : 40	15				
2 : 55	20	<i>History.</i>	<i>History.</i>	<i>Spelling.</i>	Blocks.
3 : 15	20	<i>Geography.</i>	<i>Reading.</i>	<i>Spelling.</i>	States.
3 : 25	10	<i>Geography.</i>	<i>Reading.</i>	<i>Miscellaneous Drills.</i>	
3 : 35	15	<i>Geography.</i>	<i>Reading.</i>		
3 : 50	20	<i>Spelling.</i>	<i>Spelling.</i>		
4 : 10	20	<i>Physiology.</i>	<i>Dismissed.</i>		
4 : 30	1/4	<i>Dismissed.</i>			

OUTLINE OF PERCENTAGE.

CONTRIBUTED BY LINA HINKS.

[The following outline is complete and sufficiently clear, we think, to be understood, if carefully studied.]

11 Definition. That division of Arithmetic in which *one hundred* is taken as the basis of computation.

21 General rule.

I. "Determine from the conditions of the problem that quantity which 100 per cent. will best represent.

II. "Reason from *many* to *one* and from *one* to *many*, as the nature of the question may require."

31 Terms employed.

12 Per cent.

13 Definition: a term derived from the Latin words *per centum*, signifying *by the hundred*.

23 Symbol= $\%$.

22 Base.

13 Definition: that quantity on which percentage is computed.

23 Symbol =B.

32 Rate.

13 Definition: that quantity which expresses the number of *hundredths* to be considered.

23 Symbol=R.

42 Percentage.

13 Definition: that part of the base which is indicated by the per cent.

23 Symbol=P.

52 Sum, or Amount.

- 1³ Definition: the base *plus* the percentage.
 2³ Symbol=S. or Am't.
 6² Difference.
 1³ Definition: the base *minus* the percentage.
 2³ Symbol=D.
 4¹ Cases.
 1² Case I.
 1³ Quantities given.
 1⁴ Base.
 2⁴ Rate.
 2³ Quantity required: Percentage.
 3³ Formula: $P=B \times R$.
 4³ Example. (Prob. 1, p. 231, French).
 1⁴ Statement: Find 20% of 960 bu.
 2⁴ Solution:
 Let 100% = 960 bu.
 Then 1% = $\frac{1}{100}$ of 960 bu., = 9.6 bu.
 20% = 20 times 9.6 bu., = 192 bu.
 3⁴ Conclusion: \therefore 20 per cent. of 960 bu. is 192 bu.
 2² Case II.
 1³ Quantities given.
 1⁴ Base. 2⁴ Percentage.
 2³ Quantity required: Rate.
 3³ Formula. $R=P \div 1$ per cent. of B.
 4³ Example. (Prob. 11, p. 232, French).
 1⁴ Statement: 17 is what per cent. of 51?
 2⁴ Solution:
 Let 51 = 100 per cent.
 Then $1 = \frac{1}{51}$ of 100% = $\frac{100}{51}$ per cent.;
 17 = 17 times $\frac{100}{51}$ per cent. = $33\frac{1}{3}$ per cent.
 3⁴ Conclusion: \therefore 17 is $33\frac{1}{3}$ per cent. of 51.
 3² Case III.
 1³ Quantities given.
 1⁴ Rate. 2⁴ Percentage.
 2³ Quantity required: Base.
 3³ Formula: $B=P \div R$.

43 Example. (Prob. 18, p. 233, French).

14 Statement. 465 mi. is 15 per cent. of how many
mi.?

24 Solution:

Let 100 per cent.=the req. num. of mi.

Since 15 per cent.=465 mi.,

and 100 per cent.=100 times 31 mi.,=3100 mi.

34 Conclusion: \therefore 465 mi. is 15 per cent. of 3100
miles.

42 Case IV.

13 Quantities given.

14 Base. 24 Rate.

23 Quantity required: Am't or Diff.

33 Formulæ.

14 When the amount is required: $\text{Am't. B.} = \times (100$
+ R.).

24 When the difference is required: $\text{Diff.} = \text{B.} \times$
(100—R.).

43 Examples. (Prob. 25, p. 234, French).

14 When the amount is required.

15 Statement: Given, the B.=125, R.=25 per
cent., to find the amount.

25 Solution.

16 Preliminary work: 100 per cent.+25 per
cent.=125 per cent.=Am't.

26 Solution proper:

Let 100 per cent.=125.

1 per cent.= $1\frac{1}{100}$ of 125=1.25;

125 per cent.=125 times 1.25=137.5.

35 Conclusion: \therefore 137.5 is the amount of 125
plus 25 per cent.

24 When the difference is required.

15 Statement: Given, the B.=125, R.=25 per
cent., to find the difference.

25 Solution.

16 Preliminary work: 100 per cent.—25 per
cent.=75 per cent.

26 Solution proper.

Let 100 per cent. = 125.

Then 1 per cent. = $\frac{1}{100}$ of 125, = 1.25; 75 per cent. = 75 times 1.25, = 94.75.

35 Conclusion: \therefore 94.75 is the difference of 125 and 25 per cent.

52 Case V.

13 Quantities.

14 Rate. 24 Amount or difference.

23 Quantity required: Base.

33 Formulæ.

14 When the amount is given.

$B. = A. \div (100 + R.)$.

24 When the difference is given: $B. = D. : (100 - R.)$.

43 Examples. (Prob. 33, p. 235, French).

14 When the amount is given.

15 Statement: 267.5 is 7 per cent. more than what number?

25 Solution:

Let 100 per cent. = the required number.

100 per cent. + 7 per cent. = 107 per cent.

Since 107 per cent. = 267.5.

1 per cent. = $\frac{1}{107}$ of 267.5, = 2.5;

100 per cent. = 100 times 2.5, = 250.

35 Conclusion: \therefore 267.5 is 7 per cent. more than 250.

24 When the difference is given,

15 Statement: 267.5 is 7 per cent. less than what number?

25 Solution:

Let 100 per cent. = the required number.

100 per cent. - 7 per cent. = 93 per cent.

Since 93 per cent. = 267.5,

1 per cent. = $\frac{1}{93}$ of 267.5 = 2.865 +;

100 per cent. = 100 times 2.865, + = 286.5 +.

35 Conclusion: \therefore 267.5 is 7 per cent. less than

286.7.

51 Applications.

- 1² Insurance. 2² Commission and Brokerage.
- 3² Profit and Loss. 4² Stocks. 5² Taxes and Duties.
- 6² Interest. 7² Discount. 8² Government Securities.
- 9² Banking. 10² Exchange.
- 11² Equation of Payments.

CARTOGRAPHY.

CONTRIBUTED BY DORA LIEUELLEN.

Map Drawing.

11. Materials.

12 Paper. 13 Flat-cap. 23 Brown.

22 Rulers.

13 Straight—a scale of twelve or fourteen inches.

23 Flexible—a piece of rattan or strip of zinc will

answer.

32 Lead-pencil—Faber No. 3, with an eraser.

42 India-ink. Prepare it by dropping four or five drops of rain-water on a smooth piece of glass, then, holding the stick of ink between the fingers, rub the glass until the water is black. This will be as much as any one will use in two hours.

21 Rules.

12 Determine the scale.

13 The map should never be drawn the same size of the one in the book.

23 One and a half times this is a convenient size, if flat-cap be used.

22 The border-lines.

13 The *inner* lines should be drawn first.

14 Determine the exact length of the *north* and *east* lines on the map.

24 Make due allowance for the *increased* or *decreased* size.

34 Draw the rectangle and ascertain the latitude and longitude of its angles.

23 The outer border-line. 14 Should not be drawn

until the map is complete. 24 Should be heavier than other lines.

32 The center-line.

13 In all well-constructed maps there is a straight line passing from *north* to *south* through the center. This is the *center meridian*, and should be drawn and numbered accordingly.

42 Parallels.

13 By careful measurement determine the points at which each cuts the inner border-lines and the center meridian.

23 Using the flexible ruler, draw a line through these points.

33 Number the parallels at their eastern extremities.

52 Meridians.

13 Select the parallel nearest the center of the map.

23 Determine the points at which the meridians east of the center cut the inner border-lines and this parallel; measure the same distances upon these lines west of the center-line.

33 Through these points draw the meridians. These should be numbered at their northern extremities.

62 Out-line.

13 Establish the *key-points* in the rectangles formed by the crossings of the parallels and meridians.

14 Begin at the north-west corner of the map, determine the latitude and longitude of a town, cape, mouth of a river, or some other important locality, and place it in the corresponding position on the new map.

24 Locate a number of these points at convenient intervals; if the coast is very irregular, many; if comparatively free from indentations, *few*.

34 Carefully observing the model, unite these with a zigzag line, continuing in this manner until the entire outline is completed.

72 Islands.

13 These may be drawn in the same manner as the continents.

23 As the physical and political features are added to the continent, so should they be to the islands.

33 The outlines of the natural divisions and reliefs should be retraced in ink.

82 Mountains.

13 There are many pretty ways to represent them.

Care should be taken to leave no one in doubt concerning the importance of the range or peak, as it may be.

14 Single rows of widely scattered "fine divergent" lines represent *hills*.

24 Double rows, mountain *ranges*, several of these *systems*.

34 Several heavy strokes, shaded with lighter ones. *peaks*.

92 Deserts.

13 Determine the area covered, then dot with a pen.

23 The oases should not be colored.

102 Lakes.

13 Determine their position and draw their outline.

23 The coast line shaded with several lines adds much

to the effect.

112 Rivers.

13 Determine the most important systems.

23 Observe through what parts of the rectangles they wend their way.

33 Draw the important branches, noticing that each widens at its mouth, and the width of the *main* river is increased by the blending of their waters.

122 Political divisions.

13 Trace the boundaries in a dotted line in lead or ink.

23 Represent the capital by a circle within a circle, the principal cities by a single small circle. Other plans will suggest themselves.

132 Key.

13 No names should be placed upon the map. If the memory needs an aid this is a good one.

14 Prepare a slip of paper—one-fourth of a sheet of foolscap folded lengthwise.

24 Number the locality in lead, on the map, place a corresponding number on the *Key*, after it the name neatly written.

34 After completing it in this manner, it may be fastened to the left corner at the bottom of the map.

31 Order.

12 Indiana, or native State.

22 South America.

32 Australia.

42 Africa.

52 Asia.

62 Europe. 14 Empires. 24 Republics. 34 Kingdoms.

72 North America.

82 United States.

14 Remark:—For this, Bristol board is used.

The foregoing rules and remarks are designed to aid those who wish a *course* in *map-drawing*, where, as we understand it, *neatness* in general appearance and *accuracy* in execution are desired as well as knowledge of location. We would not have it so, but should any one desire the latter *only* this might seem too tedious; to such we recommend the more expeditious process—*Sketching*—which is made comparatively simple by the use of the *parallels* and *meridians*.

SCALE OF CRITICISM.

CONTRIBUTED BY F. P. ADAMS.

The following is a scale of criticism for use in Rhetoric and Literature Classes of the Central Normal College. The teacher, in looking over the essays, notes the mistakes by the use of figures; thus, 1 placed over a word denotes incorrect spelling; 2, wrong use of capital; 27, obsolete word, etc.

It is not supposed that every teacher will find use for the entire scale; but it may assist some in making out one for themselves. Only a few of the points should be used in criticising the essays of beginners.

I. ORTHOGRAPHY, CAPITALS, ETC.

- | | |
|----------------------|------------------|
| 1. Spelling. | 5. Word divided. |
| 2. Capitals. | 6. Paragraphing. |
| 3. Compound. | 7. Penmanship. |
| 4. Syllable divided. | |

II. PUNCTUATION.

- | | |
|----------------------|---|
| 8. For sense. | 13. For style of type. |
| 9. For abbreviation. | 14. For divided word. |
| 10. For possessive. | 15. For omission of letters, words
or sentences. |
| 11. For quotation. | |
| 12. For references. | |

III. PURITY.

The faults against purity are called *barbarisms*.

16. Archaisms: selection of obsolete words; as,
List, wot, trow.
17. Alienisms: selection of words not domesticated in general
use; as, *bizarre.*

18. Provincialisms: selection of words used **only** in certain localities; as, *tote*, *critter*, "*right smart*."

19. Technicalities: selection of words used **only** by a particular class or profession.

20. Slang; as, *chuck full*,
go it, cahoot.

24. Hybrid; as, *hemicircle*.

25. Faulty formation; as, *reluctate*.

21. Newly-coined words;
as, *shootist*.

26. Vulgar contraction; as, *Han't*
for *haven't*.

22. Faulty suffix.

23. Faulty prefix.

IV. PROPRIETY.

(1.) *Lexical*.

27. Words in obsolete use; as,

"Be buried *quick* with her."

28. Words of equivocal meaning; as,

"This translation was *overlooked* by many careful scholars."

29. Words of provincial meaning; as,

"*Directly* the queen came the performances commenced."

30. Words in mixed imagery; as,

"*Hope*, the *balm* of life, *darts* a *ray* through the thickest gloom."

31. Synonym with wrong shade of meaning; as,

"*Tolerate* me to introduce my friend, Mr. Johnson."

32. Synonym, or other word, inappropriate to style of discourse;
as,

"The distinguished arbiters met, and after a long *chat*, agreed upon the award."

33. Wrong signification.

(2.) *Grammatical*.

34. Syntax faulty.

35. Wrong inflection; as,

The clothes *was* made to order.

The boys *likes* to play marbles.

36. Wrong element; as,

He spoke *firstly* of virtue; *second* of righteousness.

37. Double use of an element; as,

"These *measures* we have considered carefully and are now presented for your review."

38. Ellipsis; as,

"I had three sons all died in a year."

39. Pleonasm; as,
John, he knows.
40. Tautology; as,
 He *works* when he does *work*.
41. Redundancy. This is the use of more words than are necessary.

V. CONCORD

42. Subject-words; as,
 He is the man *whom* they think would make a good leader
43. Predicate-words; as,
 Neither of them *are* sociable.
44. Pronouns; as,
 Each has *their* special work.
45. Appositives; as,
 "The work was John's—him whom they had already cast off."
46. Object-words; as,
 Between you and I.
47. Expression of time; as,
 They would join his party if they *can*.

VI. ARRANGEMENT.

- | | |
|-------------------------|-----------------------------------|
| 48. Principal elements. | 54. Phrases. |
| 49. Adjectives. | 55. Parts of complex sentence. |
| 50. Adverbials. | 56. Members of compound sentence. |
| 51. Modals. | |
| 52. Objectives. | 57. Promiscuous words. |
| 53. Pronouns. | |

VII. PRECISION AND ENERGY.

- | | |
|---|---|
| 58. Ambiguous word or phrase. | 64. Ellipsis obscure. |
| 59. Equivocal word or phrase. | 65. Clearness. |
| 60. Faulty definition. | 66. Ambiguous antecedent. |
| 61. Deficiency. | 67. Infinitive separated from its sign. |
| 62. Strength. | 68. Splitting a particle. |
| 63. Not specific. | |
| 69. Uncertain relation of a modifying word, phrase or sentence. | |
| 70. Omission or insertion of connective incorrect. | |

- 71. Omission or insertion of the article incorrect.
- 72. Bad choice of word or phrase.
- 73. Verbosity.
- 74. Feeble ending.
- 75. Feebleness of expression.
- 76. Commonplace.
- 77. Lack of symmetry; as,
 "The trader came to buy stock and *for trading*."
- 78. Anti-climax.
- 79. Antithesis faulty.
- 80. Negative form of expression.

VIII. FIGURES.

- 81. Mixed imagery.
- 82. Inappropriate metaphor.
- 83. Trite simile.
- 84. Unreasonable figure.

IX. PROMISCUOUS CRITICISMS.

- | | |
|------------------------|--------------------------|
| 85. Abrupt transition. | 93. Method. |
| 86. Euphony. | 94. Selection. |
| 87. Harmony. | 95. Completeness. |
| 88. Elegance. | 96. Truthfulness. |
| 89. Naturalness. | 97. Business appearance. |
| 90. Extravagance. | 98. Carelessness. |
| 91. Continuousness. | 99. Promptitude. |
| 92. Unity. | 100. Miscellaneous. |

GRAMMAR.

CONTRIBUTED BY F. P. ADAMS.

Shall the parsing lessons be written?

On every favorable occasion we declaim against the humdrum, sing-song plan that some teachers follow of having the recitations in Grammar made up wholly of the repetition of committed rules and definitions and declensions and oral parsings. Some of the lessons, or even a part of every lesson, may be oral; but no pupil can afford to be without the great advantages that result from written lessons. By writing the lessons, (1) the pupils will be more likely to prepare the entire work assigned; (2) they will work with greater care; (3) they will accustom themselves to definiteness and accuracy of thought; (4) they will improve in (a) reading, (b) writing, (c) spelling, (d) punctuation, (e) capitalization, (f) and the general appearance of their manuscripts.

We have tried this in *crowded district schools*, and we feel safe in saying that it pays in economy of time, and yields rich results in the points spoken of above.

Infinitives and Participles.

To master infinitives and participles is considered by many the most difficult task connected with grammar. It is perplexing and amusing to examine and compare the views of a few different authors with reference to these difficult parts of speech. We have not space to give, at present, the results of such an investigation. The best disposition to be made of both infinitives and participles is that made by Holbrook, Whitney and Pierce. This disposition will be understood by the following rule: "Infinitives and Participles have the constructions of *nouns, adjectives and adverbs.*"

OUTLINE.

Infinitives.

11 Constructions.

13 Of a noun.

13 Subject of a verb,

14 "*To live* in hearts we leave behind *is* not to die."

23 In predicate with a verb,

14 To die *is* to sleep.

33 Object of a verb,

14 We want to go to school.

43 Object of a preposition,

14 He is *about* to go.

53 In apposition

14 With a word,

15 The task to sweep the streets was imposed.

24 With a phrase,

15 To shuffle off this mortal coil, to cease, is not so pleasant.

23 Of an adverb

13 Modifying

14 A verb,

15 He came to get grapes.

24 An adjective,

15 Let us be content to work.

34 An adverb,

15 He labored enough to deserve it.

83 Of an adjective

13 Limiting

14 A noun,

1 There is a time to mourn.

24 A pronoun,

1 She appears to be coming.

We have endeavored in the outline given above, to show that every infinitive must have the construction either of an adjective, of an adverb, or of a noun. The same position will hold for participles.

If a participle limits a noun or a pronoun it has the construction or nature of an adjective, since that is the office that an adjective performs.

If it modifies an adjective, an adverb or a verb, then we say it has the construction of an adverb. When a participle is the subject of a verb, the object of a transitive verb in the active voice, the

object of a preposition, or in apposition with a noun or phrase, then we say it has the construction of a noun.

The following outline shows this view in condensed form.

Participial constructions.

- 1¹ Of a noun.
 - 1² Subject of a verb.
 - 2² Object of a trans. verb,
 - 3² Object of a preposition.
 - 4² In apposition.
 - 1³ With a noun.
 - 2³ With a phrase.
- 2¹ Of an adjective.
 - 1² Limiting.
 - 1³ A noun.
 - 2³ A pronoun.
 - 2² In predicate.
 - 1³ With an intransitive verb.
 - 2³ With a passive verb.
- 3¹ Of an adverb,
 - 1² Limiting
 - 1³ A verb.
 - 1⁴ Transitive,
 - 1⁵ Active.
 - 2⁵ Passive.
 - 2⁴ Intransitive.
 - 2³ An adverb.
 - 3³ An adjective.

ANALYSIS.

Sentences:

- 1¹ Classes.
 - 1² As to structure.
 - 1³ Simple.
 - 1⁴ Complete—one whose verb is finite.
 - 2⁴ Abridged—one whose verb is infinite.
 - 2³ Complex.
 - 1⁴ Principal.
 - 2⁴ Subordinate.
 - 3³ Compound.
 - 1⁴ Members.
 - 1⁵ Leading the first member.

- 25 Co-ordinate—any other than the first member.
- 22 As to use.
 - 13 Declarative.
 - 23 Imperative.
 - 33 Interrogative.
 - 43 Exclamatory.
- 21 Elements.
 - 12 Principal.
 - 13 Subject.
 - 14 Simple.
 - 24 Complex.
 - 34 Compound.
 - 23 Predicate.
 - 14 Parts.
 - 15 Copula.
 - 22 Attribute.
 - 24 Kinds.
 - 15 Simple.
 - 25 Complex.
 - 35 Compound.
 - 22 Subordinate.
 - 13 Kinds.
 - 1 As to structure.
 - 15 Simple—one whose base is unmodified.
 - 25 Complex—one whose base is modified.
 - 35 Compound—two or more simple or complex elements of equal rank, joined by co-ordinate connectives.
 - 2 As to relation.
 - 15 Adjective—one which modifies a noun or pronoun.
 - 25 Adverbial—one which modifies anything but a noun or pronoun, and is not the object of a transitive verb in the active voice.
 - 35 Objective—the object of a transitive active verb.
 - 45 Subjective—objective subject of an infinitive.
 - 34 As to base.
 - 15 First class—one whose base is a single word.
 - 25 Second class—one whose base is a preposition and its object or an infinitive.
 - 35 Third class—a complete subordinate sentence.

GUIDE FOR ANALYSIS.

1. Read the sentence.

2. Classify it {
 as to form. { Simple,
 Complex,
 Compound.
 as to use. { Declarative,
 Imperative,
 Interrogative,
 Exclamatory.
3. Give the complex subject.
 4. Give the simple subject.
 5. Point out its modifiers.

6. Classify them {
 as to structure. { Simple.
 Complex,
 Compound.
 as to relation. { Adjective,
 Adverbial,
 Objective,
 Subjective.
 as to base. { First class,
 Second class,
 Third class.

7. Give the base of each modifier and classify its modifiers.
 8. Give the complex predicate.
 9. Give the simple predicate.
 10. Point out its modifiers.

11. Classify them {
 as to structure,
 as to relation,
 as to base.
 12. Give the base and classify its modifiers.

The class should copy this guide, be drilled on it, and then recite the following outline, after which it should be written on the board.

- Kinds of Elements. {
 as to rank, { Principal,
 Subordinate.
 as to structure, { Simple,
 Complex,
 Compound.
 as to relation, { Adjective,
 Adverbial,
 Objective,
 Subjective.
 as to base. { First class,
 Second class,
 Third class.
- Kinds of Sentences. {
 as to form, { Simple,
 Complex,
 Compound.
 as to use, { Declarative,
 Imperative,
 Interrogative,
 Exclamatory.

OUTLINE ON THEORY AND PRACTICE OF TEACHING.

The following outline on the Objects of the Recitation and Qualifications of the Teacher was obtained in the teachers' training class, Central Normal College, Danville, Indiana.

I. OBJECTS OF RECITATION.

1. Examination of written work prepared by pupils.
2. Testing knowledge of pupils by

{	Topics, Questions, Written answers, Reviews, etc.
---	--
3. Imparting additional information.
 1. By Illustrations.
 2. By Conversation.
 3. By Explanation.
 4. By Demonstration, etc.
4. Cultivation of—
 1. Accurate and ready expression
 1. In writing

{	Spelling, Capitals, Punctuation, Syntax, etc.
---	--
 2. In speaking

{	By wearing off embarrassment. With notes and without.
---	--
 2. Attention.
 1. By reporting what teacher or pupils have explained or illustrated.
 2. By mutual criticism.
8. Good manners,

{	<ol style="list-style-type: none">1. In walking across the floor.2. In rising.3. In sitting.4. In standing.5. In address <table border="0" style="display: inline-table; vertical-align: middle;"><tr><td style="font-size: 3em; vertical-align: middle;">{</td><td style="vertical-align: middle;">To teacher. To fellowship.</td></tr></table>	{	To teacher. To fellowship.
{	To teacher. To fellowship.		

5. Arousing { Interest.
Love for study.
Independent thought.
Investigation.
6. Encouragement { Of the timid.
Of the slow.
Of the diligent.
7. Direction of the pupils' work.
8. *Mastery of self.*

QUALIFICATIONS OF THE TEACHER.

11 Physical.

- 12 Good health. 22 Good eyes. 32 Good ears. 42 Good voice. 52 Good looks.

21 Intellectual.

12 Natural.

13 Good common sense.

- 14 Adapting one's self to circumstances, both in teaching and government.
- 24 In familiarity with patrons and pupils.
- 34 By not enacting rules which cannot be carried into execution.
- 44 By not under or overtasking the pupils.
- 54 By not pandering to prejudice.
- 64 By not making a hobby of any single branch, but by making a hobby of all.
- 74 By not flattering or disparaging.
- 84 *Teaching by example as well as by precept.*

- 23 Cheerfulness. 33 Firmness. 43 Patience. 53 Sociability. 63 A love for the work and children. 73 Power of comparison. 83 Aptness to teach.

22 Acquired.

- 13 Knowledge of human nature.
- 23 Knowledge of the common branches.
- 33 Knowledge of the sciences.
- 43 General knowledge of history.
- 53 General knowledge of government.
- 63 General knowledge of Miscellaneous subjects.

31 Moral.

- 12 Honesty—with God and man.
- 22 Temperate in all things.

PERIODS OF THE MIND'S DEVELOPMENT.

- 11 Objective, in which the child is to be taught by means of objects. The length of this period depends upon the natural ability of the child and the amount and quality of cultivation the mind receives. The question during this period is, What ?
- 21 Transition, during which the change is made gradually from the Objective to the Subjective. Objects should not be excluded during this period. We now have the question, Why ?
- 31 Subjective, in which the mind can grasp abstract subjects. In which it can divide a subject into its parts and study them singly. Illustrations from objects not before the eye can be used successfully.

THE PERCEPTIVE, REFLECTIVE AND RETENTIVE FACULTIES DEFINED.

The Perceptives are those faculties with which we observe the position, form, size, color, motion, etc., of objects.

The Retentive faculties are those by which we retain the impressions made upon our minds by the exercise of the Perceptives.

The Reflectives are those faculties by the workings of which one is able to compare and contrast things which have come through the Perceptives and Retentives.

TRAINING THE PERCEPTIVE AND RETENTIVE FACULTIES.

- 11 Composition.
 - 12 Have pupils write what the teacher does.
 - 22 Narrate what takes place during a recitation.
 - 32 Tell about twelve things you saw on the road to school.
 - 42 Tell about what happened during holidays or Sunday.
 - 52 Listen to a story read and then reproduce it.
 - 62 Description of some object placed before the pupils.
 - 72 Description of some object previously observed by the pupils.

TRAINING THE PERCEPTIVE FACULTIES IN GEOGRAPHY.

1. Develop the ideas of boundary and direction by arranging objects on the table.
2. Drill on the direction of objects in the school-room.
3. Map the school-room.

4. Map the school-grounds.
5. Map the adjoining farms.
6. Map the house and yard of your home.
7. Map the township.
8. Map the county.
9. Map the State.

TOPIC LIST FOR THE STUDY OF GEOGRAPHY.

CONTRIBUTED BY ANNIE M. SHERRILL.

Write the list on the board, and have each pupil copy it for use during the term. In studying the text of the several countries assign a certain number of topics to be investigated and reported upon at each recitation, instead of assigning the questions in the book.

1. Locality.
2. Boundaries.
3. Latitude and Longitude.
4. Surface, $\left\{ \begin{array}{l} \text{No. of feet above sea.} \\ \text{Mountainous or flat.} \end{array} \right.$
5. Water sheds.
6. Mountains.
7. Volcanoes.
8. Plateaus.
9. Plains.
10. Deserts.
11. Peninsulas.
12. Isthmuses.
13. Capes.
14. Islands.
15. Oceans.
16. Seas.
17. Gulfs.
18. Bays.
19. Straits, $\left\{ \begin{array}{l} \text{Connect what ?} \\ \text{Separate what ?} \end{array} \right.$
20. Sounds.

21. Channels, $\left\{ \begin{array}{l} \text{Connect what?} \\ \text{Separate what?} \end{array} \right.$
22. Lakes, $\left\{ \begin{array}{l} \text{Situation.} \\ \text{Classes, } \left\{ \begin{array}{l} \text{Salt.} \\ \text{Fresh.} \end{array} \right. \\ \text{Streams, } \left\{ \begin{array}{l} \text{Inlet.} \\ \text{Outlet.} \end{array} \right. \end{array} \right.$
23. Rivers.
24. Climate.
25. Soil.
26. Productions.
27. Animals.
28. Exports.
29. Imports.
30. Commerce.
31. Area.
32. Population.
33. Nationality.
34. State of Society.
35. Political Divisions.
36. Capitals.
37. Chief Towns.
38. Government.
39. Industries.
40. Religion.
41. Education.
42. Languages.
43. Facilities for traveling.
44. History.
45. Curiosities.
46. State of advancement, $\left\{ \begin{array}{l} \text{Literature.} \\ \text{Science.} \\ \text{Art.} \end{array} \right.$

THE END.

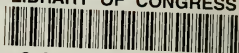
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